FRIDAY, JANUARY 16, 1891.

VOL. XXI.
FIVE DOLLARS PER ANNUM.

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AMERICAN PHOTOGRAPHER.

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A VIEW OF SING SING, N.Y.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, JANUARY 16, 1891. No. 487.

A VIEW OF SING SING.

THE beautiful landscape which embellishes our magazine this week is from a Carbutt "Eclipse" film negative by Mr. D. F. Fairchild. It is a distant view of Sing Sing from the grounds of Doctor Holbrook's Military Academy. "If there is any special charm in this landscape," writes Mr. Fairchild, "I think it is derived from the foreground and overhanging branches, which, after a good deal of search for the best position to form a picture, I selected for a framework." His selection of a point of view was certainly a judicious one, and is fully justified by the beauty of the picture.

AMPHITYPE.

IN the early days of the collodion process we were often troubled with a persisting reversal of the development, that is, the negative by being treated after fixing with silver pyrogallol progressively turned into a positive. The cause of this phenomenon I did not ascertain then, but I traced its origin and found an effective remedy which I did not publish to the present day.

The failure occurs when the negative is fixed in an old potassium cyanide solution nearly saturated with the silver salt; and sometimes also, but rarely, with a solution freshly prepared. The remedy is to flow on the film—after fixing and washing, of course—a diluted solution of iodide of mercury in potassium iodide (Maxwell Lyte's intensifier) without, however, letting it act for more than three or four seconds, then proceeding in the ordinary manner.

Photo-engravers *in relievo* will find by thus treating their negatives before re-developing with silver nitrate in order to form a good foundation to obtain by other metallic salts the great opacity necessary for their process, that the reversal is entirely avoided and that the image intensifies more rapidly.

This accidental reversal of the reductive action suggested the idea of finding a process by which it could be produced at will either by developing as usual after the action of light in the camera, or by compounding a developer adapted to the purpose. The first and most interesting process ever published was, I think, that of A. Poitevin, who always stands foremost amongst the experimenters who enriched our art with original and useful processes. The process—to the discovery of which he was led, as he says himself, by the reversal invariably occurring whenever he prepared gelatine emulsions by adding silver nitrate before potassium iodide (1859), and by the phenomenon observed by H. Bayard, that *potassium iodide acts under the luminous action on a film of silver chloride previously blackened in the light, giving rise to the formation of silver iodide**—is described *in extenso* in his communication recorded in vol. V (1859) p. 304 *et seq.* of the bulletin of the French Photographic Society. It is substantially as follows:

A film of *simply ioduretted* collodion, but containing less iodide than that usually employed, is sensitized, then superficially washed and exposed for a few seconds to diffused day-light: no chemical change is visible. The film is afterwards washed again to eliminate the remainder of the silver nitrate and kept for use, or it may be employed immediately. To render the film sensitive, but in the inverse way to the action of light, it is flowed while wet—or after wetting it, if allowed to dry—with a solution of 4 parts of potassium iodide free from iodine (this is important) in 100 parts of pure water. This done the film is exposed in the camera for a period about trice longer than necessary when operating in the ordinary manner, then the iodide is washed

* The *Moniteur Officiel* of July 22d 1839 states that on the 24th of June of the same year, Mr. Bayard showed in a public exhibition held in Paris, proofs on paper obtained by a process based on this photochemical action. From this fact it appears that Mr. Bayard first, and before Daguerre, reproduced by means of silver compounds the image of the camera obscura.

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off, the plate immersed in a silver bath at 2½ per cent. of water and the image developed by pyrogallol acidified with lactic acid or by a ferrous sulphate solution acidified with citric or tartaric acid: the result is a diapositive.

The process next in date was published in 1864 by Mr. Lamb. It is less complicated, but less interesting for the photo-chemical action has nothing to do in the obtainment of the diapositive. It is as follows: The picture is first developed with iron, but not brought out too far, then washed, fixed, redipped in the silver solution, or flowed with the same, and now treated with a pyrogallol developer to which are added a few drops of a saturated solution of potassium chlorate, whereby the negative is transformed into a positive with good blacks, shadows like Ferrier's transparencies.

Since the publication of these processes it was ascertained that the reversal occurs when, before redeveloping, the plate is exposed to a feeble daylight or washed with water having an alkaline reaction.

Mr Wm. Brooks and Mr. Thos. Bolas' processes, that of Captain Biny to convert a negative into a positive are of too recent date to be mentioned.

The new process lately discovered by Colonel J. Waterhouse, and published in full by THE TIMES (November 26th) is very valuable and well deserves the attention of photographers, for it applies to the gelatine process while those above succinctly described were devised for pictures in collodion, except, however, that of Mr. Bolas; but it is more simple and practical, consequently. This process consists to add a certain quantity of allylthiocarbamide to the alkaline pyrogallol developer to obtain the desired effect.

The organic compound, allylthiocarbamide, I could not find in the market. I, therefore, prepared it myself—which is very *facile*—by mixing, as directed, one part of pure oil of mustard with four parts of aqueous ammonia U.S.P. (26 deg. Baumé). In a few days, the chemical change being effected, I found the compound in question partly deposited as light semi-transparent rhomboidal prisons, little soluble in water at common temperatures, which after being rapidly washed in three changes of water by decantation, were dissolved to saturation. The aqueous solution thus obtained possesses an alliaceous smell of mustard, very unpleasant and persisting. It is not consequently advisable to evaporate the yellowish mother-water in a room, even under the flux of a chimney.

Allylthiocarbamide possesses some properties which are interesting to the photographer. Chlorine decomposes it with formation of hydrochloric and sulphuric acids. Bromine produces hydrobromic acid, sulphuric acid and a red brown oil which has not the smell of the oil of mustard. Iodine is dissolved in small quantities and the solution deposits by ebullition a white powder holding sulphur and iodine.

Allylthiocarbamide dissolves silver chloride to which it combines. It forms with silver nitrate a crystallizable white compound having the formula $C_4H_8N_2,AgNO_3$ which hydrogen sulphide resolves into silver sulphide, nitric acid and allylthiocarbamide. Boiling water precipitates silver sulphide-(Wurtz).

The experiments I made with this compound were not every one satisfactory. The process needs to be studied. I found that the reversal was easily produced by bathing the exposed plate in a solution of two parts of the concentrated solution of allylthiocarbamide in 100 parts of water before development. As usual the developer was the potassic pyrogallol which I consider the best of all.

Now as to the value of the process, there is no question that it can be of real utility in certain circumstances. But I think that generally the professional photographer will prefer making first a negative, which he can use for any purpose, and from it print a transparency on the diapositive carbon tissues specially manufactured to make lantern slides.

P. C. Duchochois.

CAUGHT!

THEY were sitting by the fireside
On a very frosty night,
And their heads were close together
As they talked of—well—the weather,
Or, perhaps—the "Injun" fight.

As their chat grew more engrossing
Near and nearer yet he drew
Till her fair hair brushed his shoulder,
And in trembling tones he told her
Of the—sorrows of the Sioux.

Then he put his arms about her
In the dimly-lighted room,
And they saw naught but each other,
Never heard her bad small brother
Stealing softly through the gloom,

Till a flash dispelled the darkness,
And a shrill voice cried with glee;
"Caught your photo—you and sister—
"Pa will like to know you kissed her—
Buy the negative from me?"

K. E. Barry.

THE PURPLE PIGMENT OF THE EYE.

It has long been known that the retina of the human eye and that of some animals is capable of being suffused with a purple fluid sensitive to light known as the purple pigment, and which is efficient as a reinforcement of the vision when the light is is not sufficient in the ordinary condition of the eye. Experiments indicate that the fluid in question is injected into the tissue of the retina automatically when the eye is strained in the effort to see in comparative darkness. Every practical photographer has found that when he goes into the dark-room it is at first impossible to distinguish objects clearly and that they become visible gradually. This is effected first by the adjustment of the iris of the eye, which opens in the feeble light and closes in a stronger one, so that in the full sunlight the opening is very small, and in a dark-room extends to the full extent of the capacity of the iris. But this does not suffice for the dark-room, and when we are in the diminished light necessary for photographic operations, the eye no longer suffices for the manipulations. Then things begin slowly to loom up in the dark and after some minutes the dark-vision is at the maximum. This susceptibility of the eye to the increase of sensitiveness becomes greater with exercise, and I find that I can see now in a light which no waiting made sufficient when I first began to work the gelatine dry plates.

The philosophy of the matter is obscure, for no one can examine the process, though it has been ascertained that the retina when charged with the purple pigment is capable of being impressed with an image which remains for a short time. I have lately made such an examination of the phenomenon as was possible in my own vision while going repeatedly through the series of tunnels on the Florence-Bologna railway, where there is a succession of tunnels forty-two in number, in a few miles. By protecting the eye from the influence of the brighter light of open day and preserving as near as possible the minimum of expansion of the iris, I noted the interval of time required to obtain the maximum of vision in the dark of the tunnel, which was never absolute, though at first it seemed so. I also tried it with the full daylight and the abrupt transition from it to the dark of the tunnel. I found that the time of attaining maximum vision in the dark diminished until it became only a few seconds in the last tunnels through which we passed. The manner in which the vision came seemed to me to indicate that the expansion of the iris, which is instantaneous, was followed by a perceptible interval of complete darkness and that then the eye became flooded gradually by whatever gives it the capacity of better vision and on coming suddenly into the open light the eye recovered from its blinding effect more quickly with continued repetition, as it did from the effect of the darkness, and when plunged back into the dark again found the fluid more ready to return, as if it were held in reserve after being withdrawn. The tunnels being only in general a few hundred yards long the darkness was never absolute, nor would it have been if there had not been the dim light of a bad lamp by which one might have developed a plate at need. I have passed the tunnels even without that.

The modus operandi of the purple pigment must remain more or less a mystery, so far as actual demonstration is concerned, but I can only conceive two methods of action; one being by producing an increased tension in the retina, and thence a susceptibility to finer vibrations of light, as a more tightly drawn violin string responds to a lighter touch; or by stimulating the nerve tissue to a higher sensitiveness by its presence after the manner of condiments to jaded appetites. Supposing the phenomenon of a visible image formed on the retina when charged with the purple pigment, this would depend, in the former hypothesis, on the pigment flowing into the retina with a force proportional to the action on it of the light and producing a local tension which is in proportion to the strength of the light in each part of the image. In the second hypothesis the purple fluid would act as the blood does when called to the brain or other organ by an unusual strain on its capacities and develop a greater degree of sensitiveness as the blood does of activity in the brain. In no case can the fluid itself be supposed to be the sensitive element, for it is not a portion of the nerve system but a movable substance capable of some mysterious action on the nerve which alone is the medium of communication with the brain. As in nature every provision must be regarded as indispensable for the work to be done, we must suppose the purple color to be necessary and this might be simply by the greater absorption of light of which the darker tint is capable, being transferred to the network of nerve itself by the intimate contact or what may be considered as a saturation of the tissue of nerves.

I am inclined to the former hypothesis for the reason that as the experiments on the visible image created on the retina by means of the purple pigment, show the presence of the pigment to be positive, *i. e.*, in proportion to the intensity of the light, it must be accepted that the pigment is the

more abundant at any particular part of the retina as the light acts more strongly on it causing a tension which can be understood by the illustration of one of the little india-rubber balloons inflated to a high tension and increasing the elasticity, or responsiveness to a blow. The tightening of the head of a drum is another illustration of the same effect. If the other hypothesis were the correct one viz., that the pigment was a stimulant required to enable the eye to detect the fainter radiations, the tendency of repetitions of the stimulus would seem to be to make the retina less susceptible and the return of the maximum of impressibility longer in coming on whereas we find that it is quicker, and at the same time the use of a stimulus is in general rather to deaden than to render more sensitive any tissue.

I think we may therefore consider the use of the purple pigment to be that of putting a certain pressure on the tissue of nerves which forms the retina and making the sensitive termini of nerve more tense in some manner which we do not at present understand while at the same time by surrounding them and perhaps infusing the sensitive extremities themselves with the darker fluid, making them more ready to absorb the light. We have, in general, a very incomplete conception of the power of vision in any respect, as that of the average man is only a medium vision. Cats and many other animals have clear vision where we see nothing and amongst men there are cases of extreme power of sight to most people inconceivable. I have seen men in Montenegro who could distinguish the moons of Jupiter with the naked eye and my Montenegrin servant could distinguish people at a distance at which I could only see moving specks, so as to be able to tell me if they were men or women, horses, mules, or other animals, etc., which I was only able to verify with a telescope, and my vision is above the average for distances.

W. J. Stillman.

"THE BEST SELLING PHOTOGRAPHS TO-DAY," said a clerk in a Broadway store that makes a specialty of selling photographs of foreign and local celebrities, to the representative of a New York paper, "are those of Mrs. Potter, Mrs. Langtry, Mary Anderson, Edwin Booth, and Lawrence Barrett. Mr. Harrison's photos have never sold well, and the sale of Mrs. Cleveland's likeness fell short one-half after the close of her husband's administration. The demand for the pictures of Mrs Langtry and Mary Anderson has continued uninterruptedly for the past seven or eight years. Women's tastes are much more fickle than men's, as, for instance, the photographs of popular actors vary in their demand as much as the style in spring bonnets."

THE CHEMISTRY OF FIXING.

(*Continued from page* 647.)

ATTEMPTS TO REMOVE HYPO BY CHEMICAL MEANS.

The length of time twenty-four hours according to many writers—required to remove the last traces of hypo from prints by the action of water alone ; and the physical exertion needed when such a plan as sponging or pressing the prints is adopted, have led to many attempts to find some speedy and effective mean of removing the treacherous fixing agent from the paper. In effecting the removal or destroyal of hypo, these plans are, for the most part, effective ; but they are, unfortunately, apt to introduce, at the same time, other chemical compounds whose presence may be even more harmful.

Peroxide of hydrogen. At a meeting of the Photographic Society of Scotland on 8th May 1866, a paper sent by Dr. Angus Smith, of Manchester was read,* in which he recommended a solution composed of one part of the liquid peroxide (as sold commercially) to one thousand parts of water as a mean of oxidising the hyposulphites remaining in the prints with "innoxious and harmless sulphates." Peroxide of hydrogen (H_2O_2) was then sold at five shillings per lb., but it is now (1890) only two shillings per pound. It is a substance which is very unstable and in the presence of the other chemicals it decomposes into water and oxygen, as follows :—

H_2O_2	*produces*	O *and*	H_2O
Hydrogen peroxide		Oxygen	Water

The oxygen then combines with the hypo :—

$Na_2S_2O_3$	*and* $2O_2$	*and* H_2O	*produce*	$2\,Na\,HSO_4$
Sodium hypo sulphite	Oxygen	Water		Sodium hydrogen sulphate.

The sodium-hydrogen sulphate is readily removed from the paper by a short washing in water ; but even if any be left in the print it would be comparatively harmless.

The objections to the use of hydrogen peroxide as a hypo eliminator are that it is liable to destroy the more delicate half-tones of the image, and that it does not keep well. Where hydrogen peroxide cannot be bought, it may be readily prepared by

* See *British Journal of Photography* for 1866 pp. 226, 232, 267, 316, 327.

mixing one ounce of glacial acetic acid with four ounces of *cold* water and adding one ounce of powdered barium dioxide. the prints should be immersed in this solution for five minutes.

Sodium and other Hypochlorites as Eliminating Agents.—In 1864 Mr. F. W. Hart told the members of the South London Photographic Society (see *British Journal of Photography* for March 1, 1864) that "with the desire, if possible, to secure the permanency of silver prints he had experimented as follows: Two prints were taken—for which the paper had been prepared in the usual way—and treated throughout in an exactly similar manner up to the point of toning, when one, after being toned, was immersed in hyposulphite of soda, rinsed, and then immersed in an aqueous solution of chlorine and chloride of barium. The effect of this treatment he (Mr. Hart) had found to be the conversion of any remaining traces of hyposulphite of soda into sulphate of barium and chloride of sodium, thereby ensuring the non-existence of sulphur in the prints."

We cannot hear of this plan having been adopted by anyone. The free chlorine would probably affect the half-tones of the prints considerably.

But in 1866 the same worker (Mr. F. W. Hart) proposed a method which has been more generally tried, though it cannot be said to have been adopted to any extent. Mr. Hart's second proposal (read as a paper before the South London Photographic Society, see *British Journal of Photography* for June 22, 1866. See also editorial article in number for June 29, 1866) was on the subject of "The Elimination of the Double Hyposulphites of Soda and Silver from Photographic Prints." The substance now proposed to be used for this purpose was hypochlorite of soda. When this is brought into contact with hypo the following reaction occurs:

$$\underset{\text{sodium hypochlorite}}{NaClO} \textit{ and } \underset{\text{sodium hyposulphite}}{Na_2S_2O_3} \textit{ with } \underset{\text{water}}{H_2O} \textit{ produce } \underset{\text{sodium chloride}}{4NaCl} \textit{ and } \underset{\text{sodium hydrogen sulphate}}{2NaHSO_4}$$

Sodium hypochlorite is sold commercially as "Labarraques' solution." It can readily be prepared by dissolving a quarter-pound of carbonate of soda in ten ounces of water, and two ounces of chloride of lime in thirty ounces of water. Mix, boil, and filter.

Other hypochlorites have since been introduced; and in America, zinc hypochlorite (sold as "Flandreau's eliminator") has been rather a favorite. Its chemical action is as follows:

$$\underset{\text{Zinc hypochlorite}}{2ZnCl_2O_2} \textit{ and } \underset{\text{Sodium hyposulphite}}{Na_2S_2O_3} \textit{ with } \underset{\text{Water}}{H_2O} \textit{ produce } \underset{\text{Zinc chloride}}{2ZnCl_2} \textit{ and } \underset{\text{Sodium hydrogen sulphite.}}{2NaHSO_4}$$

It this were all that could happen, then zinc hypochlorite (and the other hypochlorites) would be good hypo eliminators; but they do not keep well; and they are very liable to liberate free chlorine, the following *secondary* reaction then occurring:

$$\underset{\text{Sodium hyposulphite}}{Na_2S_2O_3} \textit{ and } \underset{\text{Chlorine}}{8Cl} \textit{ with } \underset{\text{water}}{5H_2O} \textit{ produce } \underset{\text{Hydrochloric acid}}{8HCl} \textit{ and } \underset{\text{Sodium hydrogen sulphate.}}{2NaHSO_4}$$

The hydrochloric acid so formed would immediately react upon more hypo in the following way:

$$\underset{\text{Sodium hyposulphite}}{Na_2S_2O_3} \textit{ and } \underset{\text{Hydrochloric acid}}{2HCl} \textit{ produce } \underset{\text{Sulphur}}{S} \textit{ and } \underset{\text{Sulphur dioxide}}{SO_2} \textit{ and } \underset{\text{Sodium chloride}}{2NaCl} \textit{ and } \underset{\text{Water.}}{H_2O}$$

Now sulphur is perhaps the most injurious substance we can possibly have in the print.*

Potash hypochlorite (commercially known as eau de javelle) has also been much used as a hypo eliminator. It is easily made by dissolving a quarter of a pound of carbonate of potash in thirty ounces of water; then mix two ounces of chloride (properly hypochlorite) of lime in ten ounces of water. Mix the two liquids, boil, and filter. The chemical action is:

$$\underset{\text{Sodium hyposulphite}}{Na_2S_2O_3} \textit{ and } \underset{\text{Potassium hypochlorite}}{4KClO} \textit{ with } \underset{\text{Water}}{4H_2O} \textit{ produce } \underset{\text{Potassium chloride}}{4KCl} \textit{ and } \underset{\text{Sodium hydrogen sulphate.}}{2NaSO_4}$$

It will be seen that all these hypochlorites are of an unstable nature, readily parting with their oxygen, and becoming reduced to chlorides. The liberated oxygen combines with the hypo to form a sulphate, which is a stable and comparatively harmless compound.

W. Jerome Harrison.

(*To be continued.*)

TWENTY YEARS AGO no photograph was more often seen than that of President Lincoln sitting with a big book on his knee, and his little son Tad leaning against him and looking at it with him. The book was then thought to be a Bible, but it wasn't. It was Photographer Brady's picture

**British Journal of Photography* for October 26, 1886.

album, as it now comes out, which the president was examining with his son while some ladies stood by. The artist begged the president to remain quiet, and the picture was taken.

"DIAZOTYPE" PROCESS.

[Read before the Franklin Institute, Philadelphia.]

THE subject I have the pleasure to bring before the members of the Franklin Institute this evening* is the Diazotype Process of Photographic Dyeing and Printing, the discovery of Mr. Arthur G. Green, of London. It is a new method of producing designs in fast colors on cotton, linen, silk, paper, &c., either from hand-drawn designs on a transparent or semi-transparent medium, or by use of a photographic transparency. It was first made public at a meeting of the British Association for the Advancement of Science, held at Leeds last September.

It is distinctly a positive process—that is, you obtain a positive from a positive. The operations are five in number, viz.: dyeing, sensitizing, printing, developing, and washing; corresponding very closely in number of operations required in preparing and printing on paper by the direct silver process of photographic printing.

Primuline is the base of the new "Diazotype," and is already in extensive use for dyeing calico in various tints. The first operation, then, is to dye our material with primuline. To do this, take 100 grains of primuline, add it to 20 ounces of distilled water brought to a boil in a flask over a Bunsen burner; when dissolved, pour into a porcelain dish, and immerse the fabric, cotton cloth (the cotton must be free from dressing) or silk, and as soon as the pieces seem thoroughly impregnated with the dye—four to five minutes will suffice—remove and rinse in plain water, squeeze as dry as possible, or place between sheets of blotting paper. The fabric so prepared has a primrose hue, and so far is insensitive to light.

The second operation, or sensitizing, is accomplished by immersing the dyed fabric in a solution formed of sodium nitrite, 60 grains; cold water, 32 ounces; oxalic acid, 100 grains, previously dissolved in 2 ounces of water. Each piece is immersed separately and soaked for two or three minutes; they are then rinsed in water and dried. The color of the fabric should be of a reddish-yellow, and is sensitive to light, and the operation should be performed in a weak light, and the pieces dried in the dark.

* Monday evening, January 5th, 1891.

Printing. You place in a printing frame a glass transparency, and place over it the diazotised fabric in contact, and expose it to daylight 10 to 20 minutes, or sunlight 4 to 7 minutes. The greater the contrast, in the transparency, the greater will be the contrast in the finished print, the action of daylight being to decompose the azo derivative, and so prevent reaction with the "developers," so called, to be afterwards applied; but if we take a piece of the sensitive material that had not been exposed to light, and apply one or more of the developers, or, as a dyer would call it a "Mordant," we at once develop the full tint or color by the reaction of that particular solution used.

This I will now illustrate. I have here a piece of porcelain coated with a solution of gelatine and primuline, and sensitized in the same bath as the cotton cloth. I now paint over one-fifth of its surface, consecutively with each of the following five solutions or developers.

No. 1, as you see, develops a red color.
No. 2, produces an orange color.
No. 3, produces a yellow color.
No. 4, produces a purple color.
No. 5, produces a dark brown or black.

It only remains to well rinse this in water, when the colors will be found fixed and permanent. This demonstration will illustrate to you the possibility of producing these several colors on one and the same picture, as follows: By mixing a portion of each developer with a thin starch paste, and with a camel's-hair pencil paint over the parts wanted of a particular color with the particular solution intended to produce that color, of course in a weak light, as the image is faintly visible after exposure under the transparency.

The composition of the five developers just used is as follows:

DEVELOPERS.

No. 1. *Red.*

Betanaphthol	30 grains
Caustic soda	40 grains
Water	10 ounces

No. 2. *Orange.*

Resorcin	30 grains
Water	10 ounces
Caustic Soda	45 grains

No. 3. *Yellow.*

Crystallized carbolic acid	50 grains
Water	10 ounces

No. 4. *Purple.*

Napthylamin	60 grains
Water	10 ounces
Oxalic acid	6 grains

No. 5. Black.

Eikonogen ....50 grains
Water .....10 ounces

Transparencies on glass and positives on celluloid and opal, can be produced as shown by the specimens I have here, and which can be inspected at the close of the meeting.

The composition of the coating is as follows:

Water distilled .....20 ounces
Gelatine..... 1 ounce
Primuline.....80 grains
Chrome alum..... 2 grains

Put the gelatine to soak in 6 ounces of water, dissolve the primuline in 12 ounces of hot distilled water, and when dissolved add the gelatine and the chrome alum, dissolved in the remaining 2 ounces of water, filter through cotton and flow while warm over the glass or porcelain, and lay on cold level slab to set; when dry, immerse for two minutes in the sensitizing solution, wash for five minutes and allow to dry in dark.

The operation of printing and developing is the same as for prints on cotton, etc.

I will now develop several exposures made today, using different developers, after which I will change the subject by illustrating the value of the hand camera as a photographic diary of travel, by showing on the screen a few subjects from negatives taken during a three months' trip abroad last summer.

I have here the camera in which the exposures were made, using "Celluloid" films; "Eclipse" for instantaneous and orthochromatic for short-time exposures—using double film holders, in a Scovill 4x5 Detective Camera and Morrison 6-inch-focus lens.

John Carbutt.

Just So.—Photographs for determining the motions of moving animals and flying birds are now taken on a traveling band of sensitized paper by means of intermittent flashes of light, and the movement of the paper in the focus of the camera is controlled by an electro magnet, says a daily newspaper.

A UNIVERSAL DEVELOPER.

There has been much said and written about a universal developer, but it has hardly been attained yet. No one developer with pyro and alkali always in same proportion will work equally well on all brands of dry plates. Development is much better understood than formerly, yet there are some who have trouble. Pyro is the stand-by still. Here is a developer which has given good results on many brands of plates. If used *thoughtfully* it will give the finest effects on any plate from a Carbutt B to Cramer 80.

Solution No. 1.

Water.....60 ounces
Sulphite soda, 3 ounces cryst., or gran.... ..... 2 ounces

No. 2.

Water..... ....20 ounces
Carbonate of soda ..... 3 ounces

No. 3.

Bromide ammonium, 10 per cent. solution.
Pyro (dry always) 6 to 24 grains to 4 ounces developer.

First let us see what each chemical is for. Pyro is the developing agent, but must have an alkali with it—hence the carbonate of soda—then sulphite to prevent these from staining the plate yellow—and sometimes bromide, to prevent fog.

Different makes of plates require different quantities of pyro, alkali, sulphite and bromide. The color of a negative can be varied from gray to yellow, according as more or less sulphite is used.

The solutions given above will be found reliable if good chemicals are used.

Now, to develop—a portrait negative for instance. Have your dark-room chemicals and trays warm, not hot; take three ounces sulphite solution, one ounce soda solution, dry pyro six grains. Mix thoroughly. Develop until all detail is out and the image shows through on the back. If, after fixing, the negative is weak and flat, add more pyro next time, say one to three grains, and try again. Let the density of the negative be goverened as much by the amount of pyro as by appearance when examined by transmitted light. You can soon ascertain the amount of pyro necessary to give proper intensity to the brand of plates you are using, if you develop at a uniform temperature.

If there is a tendency to fog slightly during development, the unexposed edges of plate discolor, and there is such tendency with many rapid plates, add a little bromide to the developer *before you start on the next plate*, begin with five drops of the ten per cent solution. If this don't cure it add ten, and in some cases fifteen or twenty drops, to the four ounce of developer. Have a little dropper, such as are used to drop medicine, then you can add bromide quickly and accurately. If you have a copy or view to make, *use at least double the amount of pyro.* If six grains is sufficient for portraits use twelve to eighteen for a copy. This suggestion, if heeded, will be found valuable.

In regard to weighing pyro it is no more trouble than measuring a solution. Have some little scales, such as the dealers sell for 50 cents. Hang them on a hook in a convenient place in your dark-room, and use for nothing else, put in the weight you use most in one scale pan and leave it there.

If you have a plate you think is over timed, mix the developer as usual, except the alkali. Flow plate with it a minute or two, turn off, and without rinsing replace with normal developer. If the image appears too rapidly go back to the first solution, by alternating the proper amount of detail and density can be obtained. Almost any amount of over-exposure can be managed in this way. For extreme under-exposure leave out the pyro first, and add it after soaking the plate a short time. Old developer is not recommended except as a retarder.

E. B. Luce.

IMPRESSIONISM IN PHOTOGRAPHY.

[A Communication to the Society of Arts.]

THIS is an age of scientific inquiry in every branch of knowledge. Empiricism, irrational authority, and conventions have been largely cast aside, and freedom of thought and scientific investigation have taken their place. Phenomena are closely observed, and a basis of material fact and proof is demanded for every principle that is sought to be established, whether in biology, mental and moral science, or philology. Matter is held to be the storehouse of every possibility, and the observation of its infinite functions the only source of true and useful knowledge and progress.

The supernatural is losing its power to command worship, and a nobler wonder, roused by the laying bare of the natural causes of the phenomena of the universe, reins in its stead. Poets and philosophers have, equally with scientific men, been effected by the freer spirit. Literature has more of the true character of life and nature in it, and the newer light has even written its effect in our later students' text-books. Finally, in art the same influence is discovered in the revolt against conventionalism, and in the scholarly practice of those painters who have been variously called impressionist, naturalistic, and the like.

It would have been indeed strange if, amongst all these changes of principle and action, which we are pleased to call progress, the domain of art had remained untouched and unaffected. For the painters' art has been trammelled by conventions and chained by dogma equally with ethics and science. There have been unnatural conventions in regard to color, conventions about form and proportions, conventions concerning light and shade, arrangement of lines, and decorative qualities, as well as many other marks and mannerisms imitated in a manner tending to obscure and lead away from the greatest beauty in pictures—namely, their truth to nature.

It has been well said: "It is so much easier to do what one has done before than to do a new thing, that there is a perpetual tendency to a set mode, but nature abhors mannerism, and has set her heart on breaking up all styles and tricks." Now these "set modes" and conventional treatments in art have been such that the more they have been compared with natural facts, facts of atmosphere, facts of light, facts of color, the more have their formality and falsity become apparent to unprejudiced observers influenced by the spirit of free and scholarly inquiry. Nothing but a return to nature can break up such "styles and tricks" and free an artist from the tyranny of previous great names and works. It was such a return to nature, such a close observation of natural appearances under the influence of the materialistic tendency of the age, that led to the growth and practice of the body of painters known as impressionists. Abandoning all consideration of the arrangements and mechanism of previous workers, they have consulted only their impressions of natural scenes, and, to those impressions, painted. With one point of sight and one subject of supreme interest they have aimed to seize, above all else, the action and first impression of that subject. The effect of such work upon the painters of the older conventions, and upon their following amongst the public, was to rouse hot opposition, but the best of the new influences have had very considerable effect upon the more liberal of established painters. De Chesneau, writing of the pictures of M. Monet, says: "In spite of such works as these the eye of the public—trained to exclusiveness by long intercourse with other and no less legitimate readings of nature, and prevented in a great measure by the abuse of facile tricks of painting—refuses as yet to recognize the purpose and merit of this school. But it will come to it."

A more judicious section, those who seek a natural and scientific basis for their practice, has preferred, as far as such tenets permit any crystallizations, to style itself "The Naturalistic School." The painters of this school, seeing the conventional untruths generally practiced in pictorial representations in regard to light, color, and atmosphere, have set themselves to the practice of close observation of nature to gain a better knowledge of the infinite mysteries of these phenomena.

Truth to nature is the first article of their faith, and the truest that science teaches concerning light and color, and the manner in which the eye sees is made a guiding principle. Every naturalistic artist must be a scholar. Happily, a cultured sense arrives at the same preference as that to which in the main the scientific inquirer is led. Should any fresh investigation lead to a truer view of physical or mental fact, the naturalistic student, to deserve the name, must readily make a re-adjustment of his principles and modify his methods in accordance. It is not unnatural that the eccentricities as well as the genuineness of a new development should come to be regarded as distinctive of a school, but it must be remembered that any tenet or practice, to be naturalistic, must stand the test of scientific investigation. Naturalism, then, instead of signifying indistinctness and eccentricity, as is not uncommonly supposed, purports to be the gospel of common-sense, scientific inquiry, and culture in art. It leaves its advocates free to express themselves about what is going on in the world by means of their graphic art, without other trammels than a severe regard to truth, naturalness, and perfect expression. The naturalistic painters find the possibilities of all poetry in nature; it is truthful representation, perfect expression, that constitute their art. They hold that what is seen should be painted, that symbolism and imaginative creations can have but a feeble interest, and that what we have actual contact with in life affords the opportunity for the most powerful expression by graphic art of any abstract quality. It is in the life of to-day, and not in the illustration of other people's ideas, whether past historical subjects or so-called works of imagination and allegory, that the proper province of the painter's art is to be found. To be true, and living, and moving to our sensibilities, the scenes and subjects depicted must be studied directly from nature by the artist.

Should any one desire to get a better idea of the tenets of the naturalistic school, I would refer him to Mr. Francis Bates' book "The Naturalistic School of Painting," a fresh, direct, convincing little work which every photographer should read, and in parts re-read, and to which I wish to express my own indebtedness.

Under such principles have been produced paintings which have the power of moving a sympathetic nature-loving observer to the keenest of æsthetic pleasure, an ecstacy of enjoyment far beyond any satisfaction derived from "the fitness of symbolism" or decorative arrangement. Some may never have discovered this feeling for subtle representations of natural scenes, but no one is capable of estimating the respective merits of the old and the new, the power of such poetry as is shown in symbolical or decorative work as compared with the poetry of naturalism, who has not felt enraptured by the perfection of naturalness of some of these genuine impressionists' paintings. There is a liveliness, an exuberance of joy, a yearning for a sympathetic companion to share the feeling of exultation, when one has happened suddenly upon a subtle fact of natural light, color, air, or form happily touched off, a curve of the beach, a boat seen from the shore level on a stormy day over the crests of the surf, a broken bit of ground in sunlight, and the like.

George Davison.

(*To be continued.*)

Notes and News.

The Berlin School of Photography for ladies has now a membership of twenty-eight.

The Subject selected for illustration at the coming Exhibition will be "Elaine" in Tennyson's "Idyl's of the Kings."

The Next "One Man" Exhibition at the Boston Camera Club rooms will be by Mr. Latimer, and will undoubtedly be a very interesting one.

Count Primoli of Rome, Italy, is reported to have exposed thirty thousand negatives in two years, at the expense of ten thousand dollars.

Copies of the Constitution of the American Photographic Conference may be obtained by addressing T. J. Burton, 115 West Thirty-eighth Street, New York City.

"Isaac," so well known to visitors to the Tenderloin Club House [New York], has been immortalized upon a photographic plate, reports the New York *Times*, and will now be exhibited all over the country by means of the optical lantern.

The Joint Annual Exhibition of the Boston Camera Club, the Photographic Society of Philadelphia, and the Society of Amateur Photographers of New York, will be held next spring at the Fifth Avenue Art Galleries [near Thirty-fifth Street].

Lantern Slide Exhibition.—At the meeting of the Society of Amateur Photographers of New York, Friday evening, January 9th, an interesting exhibition of lantern slides was held, consisting of the work of the Vienna Camera Club and members of the Home Society.

The Photographic Society of Philadelphia, is holding an exhibition of pictures at the Society's rooms. A large collection of pictures has been selected and placed on the walls. The exhibition will be open to the January meeting of the Society, when the honor pictures will be announced.

The Members of the Postal Photographic Club have been invited to a dinner in Philadelphia, by Miss Cornelia J. Needles, of that city. As most of the members have never met, the occasion will undoubtedly prove of much interest.

Prof. Pickering, of the Howard Observatory, sent out an important expedition the other day. The party will go to Peru to observe and photograph the stars, and determine their relative brightness. The new station will be founded near Arequipas, Peru, about 8,000 feet above sea level.

Seventy Views of Boston were thrown on the screen at the regular monthly meeting of the Photographic Section of the Y. M. C. A., of Brooklyn, Tuesday evening, December 30. Walter C. Peckham read the description accompanying the slides and, being a Bostonian himself, the reading was somewhat secondary to his own remarks, which were often more to the point.

At the regular monthly meeting of the Photographic Section of the American Institute, Tuesday evening, January 6th, an exhibition of new apparatus and description of processes was made. Mr. H. J. Newton illustrated upon the screen scenes about his country home and points of interest visited during the last summer. This was followed by other slides contributed by the members and friends of the Section.

"**I cannot help writing** once more to congratulate you upon the great success of your labors in editing 'The American Annual' for 1891," writes a well-known writer to the Editor. "I have all the numbers since the beginning, and I have often to refer to them to solve some knotty point in the problems that are always arising to perplex the photographer, and especially the amateur. I seldom look in vain."

Hand Photographs.—In England the face-photograph albums are being discarded, it is said, for the hand album. There is hardly a British belle who has not had her hand photographed, and there are enthusiasts who are raving over symmetrical hands and tapering fingers, and others who go so far as to assert that there is as much character discernable in the hand as in the face. "Musical hands," "unemotional joints," "sensitive fingers," "appreciative finger-nails," "Vandyke finger-tips," and "thieves' thumbs" are terms heard constantly in conversation.

Photographers Put Out.—A class of people who do not love old-fashioned winters, when they involve dark, stormy skies, snow and fog, as Pittsburg's sample has, are the photographers. One of them said to me yesterday, "The weather has played the dickens with my business; keeping people from my rooms, and making the development of photographs almost an impossibility. In clear, frosty weather, the winter holiday season is very profitable to the photographer, but the successive snowstorms of the last week or two have put personal looks out of the people's heads, and made them think more of dry feet than their faces. On several days it has been too dark to make a good photograph, or to finish it."—*Pittsburgh Dispatch.*

A Shrewd Young Woman Who Took No Risks on Her Love Letters.—I had an experience the other day which has interested me more than anything of a similar nature which has happened to me in all my business experience. A young lady who moves in the best society brought me three letters, and I photographed them for her, and at her request destroyed the negatives. The letters were the most tender and ardent love missives imaginable. They were addressed to the young lady herself, and were signed by a name which I am sure you would recognize instantly were I to mention it. I will confess that curiosity got the better of my judgment, and I finally said:

"You'll pardon me, but this job is a little unusual, isn't it?"

"Is it?" she said, smiling.

"It strikes me so," I replied. "I don't see why you want photographs of those letters since you have the letters themselves."

"Don't you? Well, I do. Suppose the letters were to be lost, or burned, or destroyed in some other way?"

"Wouldn't the photographs be destroyed just as easily as the letters?"

"Perhaps not; especially if they were not kept in the same place with the letters. But I'm not afraid of losing them by fire or in any such way as that. The fact is the ink is fading out, and in a short time it is likely to be illegible."

There is a girl for you who doesn't propose to take any chances in the breach of promise business.—*Chicago Mail.*

Nickel-in-the Slot Portraits.—Daguerre would turn over in his coffin, says the N. Y. *Tribune*, if he knew the latest development of the art of which he is the patron saint. Photography, after many vicissitudes, has finally reached the nickel-in-the slot point of excellence, and an association styling itself the Automatic Phototype Company of New York and New Jersey, is engaged in the business of constructing machines that will enable every one to take his own portrait for the small consideration of 5 cents and in the brief period of three minutes. These machines, larger than the automatic penny-in-the-slot weighing devices, are to be placed in ferry-houses, railroad stations, hotel corridors, and other public resorts where people are accustomed to waste valuable time, and it is believed that the company, whose paid up capital is $300,000, will make some money out of them.

The portraits are not imperial or cabinet photographs, but are very fair tin-types, 1 1-8 by 1 3-8 inches, and the operation of taking them is exceedingly simple, consisting of sitting in front of the camera, dropping in a nickel and turning a crank. In three minutes the picture is delivered.

The interior of the machine is a marvel of ingenuity, the progress of the plate being accompanied by mechanical movements that almost put in the shade the human hand. The metal fingers seem to think as they remove the little piece of tin from vat to vat, from bath to bath, keeping it five seconds in one, ten in another, twenty in a third, and so on, till it is ready for delivery. Edmund G. Fisher is the inventor, but he is prouder of the new developer he has discovered than of the machine itself, because the developer made the machine a possibility.

The officers of the Automatic Phototype Company are: President, Chandos Fulton; vice-president, Louis Runkel; secretary, William J. Lippman; treasurer, Berthold Nathan.

Photographic Societies.

COLUMBUS CAMERA CLUB.

THE annual meeting of the Columbus Camera Club was held on the evening of December 17th. The President, Mr. F. H. Howe, delivered his Annual Address, which was very interesting, containing a careful review of the past year, and giving many valuable suggestions for the future work of the Club.

The Secretary, Mr. F. J. Combs, who keeps a careful account of the Club's meetings, presented his Annual Report, which gave evidence that the Club had not been aslcep during 1890. He showed that the membership was steafiily growing, and that the comforts were very materially increased.

It was just one year since the Club had occupied its present pleasant surroundings, and in addition to it larger quarters, with commodious and well ventilated dark-room, the following additions had been made. Eastman's Daylight Enlarging Apparatus, comfortable chairs, valuable books, and framed specimens of the members' work hung on the walls. Three public entertainments were given, "Glimpses of California," "In and about Columbus, Ohio," and "Chicago, the World's Fair City." All were attended by large audiences, and the Club has now a hearty approval from the people of Columbus for the work in which they are engaged.

Another report which was well received by the members was that of the treasurer, Mr. J. C. Hull. He gave conclusive evidence that the financial condition of the Club was healthy, nothwithstanding the closeness in the money markets, by reporting a good bank account, and no outstanding debts.

Following the report of the officers, the election of officers for the coming year took place, which resulted in the following: President, F. H. Howe; Vice-President, J. N. Bradford; Secretary, F. J. Combs; Treasurer, J. J. Jennings. This closed the work for the year of 1890, and Club dispersed full of enthusiasm for the year's work before them. J. N. B.

The Secretary being so occupied that his spare time was all taken up, it was decided that the Vice-President report the proceedings of the Club to the journals, and this is the reason for my part of this work.

J. N. Bradford,
Vice-President.

The evening of December 30th, this Society gave another public entertainment, the subject of which was "The White Mountains," prepared by the members of the Boston Camera Club. It was given for the benefit of the Free Kindergarten of the Woman's Industrial Union, a charitable organization.

Owing to the many things to command the attention of the people attendant upon the Christmas holidays, the audience was not as large as upon former similar occasions, but those who listened to the lecture and viewed the grand scenery of the White Mountains were certainly rewarded by this presentation of picturesque views of the crown of New England. The lecture, which imparted the romantic interest attached to these famous mountains, was delivered by the President of the Club, Mr. F. H. Howe, and the lantern was managed by Mr. G. L. Graham, a member.

J. N. B.

The Editorial Table.

THE YEAR BOOK OF PHOTOGRAPHY AND PHOTOGRAPHIC NEWS ALMANAC is the last of the annuals for 1891 to make its appearance, but is well worth waiting for, as it contains the result of photographic experiment during the past year, and many special articles by leading photographic authorities. Its formulæ, details of processes, useful tables of figures, and numerous illustrations, are all valuable and well arranged. We commend especially the "Every-day Experiences and Processes," consisting of extracts from papers and articles which have been published in the various journals throughout the year. The frontispiece is a collotype of the last Quagga in the Zoological Gardens of London. It is from a negative by Frederick York. "The Annals of Photography for 1890" is a well written review of the year, and the editorial on "Developing-room Illumination" is a valuable contribution to photographic literature. "Guides to Practice, by Various Contributors" forms the greater part of the book. The price is the same as usual, fifty cents, in paper covers. Sent, postpaid, to any address, by The Scovill & Adams Company.

LES TRAVAUX DE L'AMATEUR PHOTOGRAPHE EN HIVER. —Un beau volume in-18 jésus avec deux planches phototypiques, une planche photozincographique et nombreuses, vignettes. Par E. Chable, Président du Photo-Club de Neuchatel. Prix, 3 fr. Pub. by Reval Seinse, de Photographie, 6 Place des Philosophos, Geneva, Switzerland.

THE SIDERIAL MESSENGER for January, 1891, contains among other interesting articles, "The Proper Motion of the Components of the 61 Cygni," by Prof. S. W. Burnham of the Lick University; "The Cause of Refraction," by Henry M. Parkhurst, and "Researches on Magnesia Fluting in connection with the Spectra Nebulæ," by George E. Hale, all three writers being well-known photographers.

THE bound (Author's) copy of *Photographic Mosaics* makes a very neat appearance, and preserves the valuable contents of this year's volume in a more permanent form than the ordinary paper covers.

RAFF & COMPANY, general steam printers at 539 Eighth Avenue, send their calendar for 1891, of convenient size and shape. WILLIAM MANN COMPANY, stationers, printers and lithographers, at 88 Maiden Lane, send their large calendar for 1891.

"THE Detroit Free Press Annual" for 1891 is an interesting pamphlet full of colored illustrations and useful information.

FROM MR. W. A. N. MORTON, of Allenwood, N. J., two 5x8 prints from negatives on Carbutt orthochromatic plates are received. One represents a scene on the New Jersey rifle range at Seagirt, the other a full length portrait of a young man. Both are faultlessly sharp, well printed and well composed.

IN an article entitled "Flashes of Light on Photography," the *Boston Globe* gives special mention of the American Annual of Photography and Photographic Times Almanac for 1891, and speaks of it in the most favorable terms.

MR. FERDINAND HANZEL, who sends us two photographs of more than ordinary merit writes:

"I have never had an instructor, or anybody to tell me how to make photographs. All I know I have learned from the books of the Scovill Series, and from THE PHOTOGRAPHIC TIMES, and now I could really not do without it."

One of the pictures, representing a railroad bridge across the Russian River, Samona, South California, is a very beautifully chosen and romantic view. It is perfectly sharp, and well developed and printed. The foreground and middleground are artistically effective, and a slight haze pervades the distant hills, giving a peculiarly fine atmosphere to the picture.

The other is an instantaneous picture of a ploughman at work. It is not as sharp as one would like to see it. A more rapid motion of the shutter, or the plough moving toward the camera in a somewhat oblique direction, instead of going at right angles across it, would doubtless have given a sharper negative.

Altogether, both pictures are above the average work, and the maker has every reason to be proud of them.

JOHN P. HARMEN, Assistant Cashier of the Peoples' National Bank, at Charlottesville, Va., sends us a 4x5 "flash" light picture made with the Improved "Waterbury" detective camera. "It represents my little niece," he writes, "looking by lamplight at Margaret McDonald Pullman's beautiful book, 'Summerland,' opened at 'In the birchwood's silver sheen.' The birchwood scene depicted on the vertical page is very sharp and clear when viewed through a 'reading glass,' and even the picture hanging against the wall, an engraved copy of Constable's 'Wheat Field,' is remarkably well produced, considering its oblique position.

"Instead of focusing in the usual way, by means of a lamp, I simply placed the pointer of the focusing scale at the 10 feet mark and determined the proper distance for the subject by stretching a tape line from camera to subject. A Scovill & Adams No. 2 magnesium cartridge was used, and the plate developed as follows: 1st, immersed a few minutes in a solution of 4 ounces of water and 20 grains of carbonate of potash; then placed in 4 ounces water, 120 grains sulphite soda, 45 grains carbonate potash, 2½ grains bromide potash, 2 drops sulphuric acid, and 16 grains pyro. Development almost as prompt, and equally as good, as a sunlight exposure; though, I suspect that if I had continued development a little longer, I would have obtained still better results."

Record of Photographic Patents.

444,083. Photographic Shutter. Edward Bausch, George Hommel, and Andreas Wallensack, Rochester, N. Y.

444,084. Process of Enameling Photographs and other prints. Christopher C. F. Brandt, Muscatine, Iowa.

444,361. Photographic Camera Shutter. George F. Kincaid, San Francisco, Cal.

A Series of Instantaneous Photographs of Amelia Glover in the act of dancing would furnish an interesting study of the capabilities of the human frame in the way of motions. Miss Glover can move apparently in twenty different ways at one time. She can kick, jump, squirm, twist, tie herself into a knot and untie herself all at once. She can kick the feather off her hat while jumping a five-board fence, and sweep the floor with her hair while dancing the Highland fling.—*St. Louis Post-Dispatch.*

Queries and Answers.

9 T. P. R. sends us the following inquiry: "I notice in my "Times Almanac" 1890 an article contributed by Mr. C. H. Poor relative to a combined toning and and fixing bath. Do you think the results from his formula as lasting as by separate baths of gold and hypo; also will his bath keep or must it be used as soon as made?

9 *Answer.*—There is no reason why Mr. Poor's toning bath should not work well and give permanent prints. The formula is an old one, as the author of the article says, and many operators have worked with it successfully. It may assuredly by expected to produce more permanent prints than those with nitrate of lead recently brought forward again, although it may take a longer time before the desired tone is attained.

10 "JENO" asks (1) whether there is a good, reliable method of printing autotype (carbon) pictures on the gold backs of watch cases; and, (2) if there is, that we will give him the formula and all necessary particulars.

10 *Answer.*—(1) It can be done by simply transferring the tissue upon the metallic surface. It may be a tedious job for an inexperienced person. (2) Read the "American Carbon Manual," published by the Scovill & Adams Company, New York. Price, 50 cents.

11 A. H. C. asks which form of ammonia is better for photographers' use, the flakes or powder?

11 *Answer.*—It may be perfectly pure in either state, but it should be quite white. When it is yellow, free iodide is present.

12 E. U. asks if Doctor Poor's formula for a combined toning and fixing bath, which is continued in "The American Annual of Photography, will keep.

12 *Answer.*—It keeps well if it is properly prepared. We caution you against using excessively acid chloride of gold, and think you had better take the chloride of gold and sodium; but then you must use double the quantity prescribed in the formula.

13 T. P. R. writes as follows: "In the TIMES of this date (November 21st) I notice an article relative to "Detta" paper. Can you inform me if it can be procured in this country. If so, where?"

13 *Answer.*—"Detta" paper is chloride of silver gelatine emulsion paper, virtually the same as our American "Omega" or Obernetter's paper. If you wish to use such paper we advise you to take the "Omega" paper, sold by The Scovill & Adams Company, and tone and fix it in the bath prepared especially for that purpose. We have not yet seen the "Detta" paper.

14 H. L. writes: "When a stop is marked $\frac{f}{8}$ or $\frac{f}{16}$ does it not mean that the hole in the stop is one-eighth or one-sixteenth the focal length of the lens?"

14 *Answer.*—Yes.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

W. I. LINCOLN ADAMS, Editor.

Issued every Friday.

Monthly (unillustrated) edition issued on the last Friday of the month.

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WITH THE BEGINNING OF THE NEW YEAR many photographers contemplate subscribing to a photographic magazine, and sometimes are in doubt as to which one they will choose.

TO SUCH we offer to send THE PHOTOGRAPHIC TIMES for three months, for one dollar, in order that they may thus have an opportunity of judging of its value.

WE CLAIM to be the representative organ of the photographic fraternity in this country, as well as a progressive magazine for amateur photographers.

WE WANT every photographer in this country to receive THE PHOTOGRAPHIC TIMES, and therefore make this special offer to those who as yet are unfamiliar with it.

IN ADDITION to the three months' trial subscription for one dollar, we will send the special HOLIDAY NUMBER and the succeeding issue in December if the subscription is sent in previous to December 19th.

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All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

When buying photographic cameras, be sure, if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

CHARLOTTESVILLE, January 1st, 1891.

W. IRVING ADAMS, Esq., President of Scovill & Adams Co., N. Y.

Dear Sir: The 4x5 "Improved Waterbury Detective" camera, which I received from you a short time ago, works so nicely, and so greatly exceeds the expectations I entertained concerning it at the time of purchase, that I feel constrained to take the liberty to express to you my appreciation of the instrument, and at the same time, with a little pardonable pride, inclose a print from a "flash-light" negative I made with it last Friday evening. It represents my little niece looking by lamplight at Margaret McDonald Pullman's beautiful book, "Summerland," opened at "in the birch-wood's silver sheen." The birch-wood scene, depicted on the vertical page, is very sharp and clear when viewed through a "reading-glass," and even the picture hanging against the wall, an engraved copy of Constable's "Wheatfield," is remarkably well reproduced, considering its oblique position.

Instead of focusing in the usual way by means of a lamp I simply placed the pointer of the focusing scale at the 10 feet mark, and determined the proper distance for the subject by stretching a tape-line from camera to subject. A Scovill No. 2 magnesium cartridge was used; and the plate developed as follows: 1st, immersed a few minutes in a solution of 4 ounces of water and 20 grains of carbonate of potash; then placed in 4 ounces water 120 grains sulphite soda, 45 grains carbonate potash, 2½ grains bromide potash, 2 drops sulphuric acid, and 16 grains pyro. Development almost as prompt, and equally as good, as a sunlight exposure, though I suspect that if I had continued development a little longer, I would have obtained still better results.

I now have two instruments, and yet I am not happy—I am sighing for a wide angle lens! Did you ever meet with an amateur that was satisfied with what he had?

I wish you a happy and busy New Year!

Yours truly,
(Signed)
JOHN P. HARMEN, Asst. Cashier.

Studio Changes.

Gloucester, Mass. The gallery of Mr. Elliott Adams was recently damaged by fire.

Business Notices.

IN his new San Francisco store at 226 Bush Street, Partridge has provided special accommodations for development of plates, which are at the disposal of the public.

FOR SALE.—Scovill 20x24 Portrait Camera and No. 4 Gem City stand, new, used a few times. Price $90; cost $145. W. G. HUSSEY, Salem, Mass.

A PERFECTLY NEW Rapid Rectilinear 8x10 Dallmeyer Lens—never used. List price $74; will sell for $60. Address LENS, 33 High Street, Orange, N. J.

FOR SALE.—One of the best small galleries in the City of Washington, D. C., doing a good and increasing business. Full particulars upon application to WILSON-HOOD-CHEYNEY CO., 910 Arch Street, Philadelphia, Pa.

Only good workmen need apply.

LOHMAN & SMITH, best retouching done for the trade at short notice. L. & S. Retouching Fluid for sale, $1.00 per two ounces. L. & S. Boxes for safe packing. Address 208 W. Monroe St., Chicago, Ill.

A COMPETENT RETOUCHER, who can also work in Crayon Ink or Colors, desires situation at moderate salary at once.
E. E. HOWARD, 835 8th Ave., Altoona, Pa.

FOR SALE—Two 4–4 Lenses, nameless, first-class for cabinet, group and full length in close quarters; one ¾ and one ½ Voightlander, good; two ¼ C. C. H. (matched) No. 1, for copying; two ¼ Jamison, also Camera Boxes for same (old style); one Lever Stand; one Seavey; four ¼ Lenses and Box; Rock Dishes, etc.
ALEX, PHOTO, Care of PULLMAN,
935 Pennsylvania Ave., Washington, D. C.

EXCHANGE—A View Outfit, cost $130.00, and good as new; consisting of a 6½x8½ Ideal Box, six double Book-holders, one Roll-holder. No. 1 Euryscope fitted with Prosch Triplex Shutter. One Finder. One Tripod to exchange for an 18x22 Portrait Box and Stand. Must be first-class and in perfect order. Address
A. B., 609 Cypress St., Chattanooga, Tenn.

FOR SALE—Nice studio doing a good business at a great bargain—$300. Owner being called away. Investigate. Address R. C. IRISH, Rhinebeck, N. Y.,
Or Lewiston, Me.

FOR SALE, at a bargain, the following entirely new goods: Four No. 1 Eastman Easels, price each $7.50, will sell for $5.00; One No. 2 Voightlander Lens, Series 4, price each $74.00, will sell for $60.00; One 8-inch Wale Lens, price each $33.00, will sell for $20.00. Address
CASH WANTED, Care THE PHOTO TIMES.

FOR SALE, CHEAP—One No. 3 Kodak, Jr., used only two weeks. For terms, etc., write to
F. B. HODGES, Rome, N. Y.

PHOTOGRAPH GALLERY FOR SALE—As I have two very good offers in other directions, I will sell my gallery very cheap if taken before long A good opening.
W. A. KINDT, Stroudsburg, Pa.

FOR SALE—A good paying gallery on the best part of Broadway in Brooklyn, N. Y. Price, $450. A real bargain; low rent. For particulars write to
"BARGAIN," Care of PHOTO TIMES,
423 Broome St., New York City.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

BACK NUMBERS OF SUN AND SHADE.—We have Nos. 3, 7, 8, 10, 11, 12, 13, 14 of SUN AND SHADE which we will sell at twenty-five cents each, mailing them, post paid, to any address, on receipt of that amount. *They are held at a premium* by the publishers. This offer will hold good only till this stock is sold
THE SCOVILL & ADAMS CO

100 DOLLARS IN PRIZES—For the best flash-light pictures made on THE "CHAUTAUQUA" PLATE prior to March 1, 1891. Send for circulars naming conditions.
MONROE DRY PLATE WORKS, Jamestown, N.Y.

NOW READY, MORAN'S BARGAIN LIST No. 37, fourteen pages. Look out for it. Send your address and secure a copy. R. H. MORAN,
396 Broome Street, New York.

Absolutely Unequalled. The Wonderful Beck Lenses. If your dealer does not have them in stock, write the Sole American Agents, Williams, Brown & Earle, Photographic Supplies, N. E. 10th and Chestnut Streets, Philadelphia. They are mounted in Aluminum, reducing weight one half. Send two stamps for circular.

READY-SENSITIZED PLATINOTYPE PAPER and a New Developer for it! We have an Improved Sensitized Paper with better keeping qualities and a New Developer which produces a brighter color in the finished prints. Send 10 cents for sample print and instructions to WILLIS & CLEMENTS, Patentees,
39 South 10th St., Philadelphia.

A DOUBLE HOLDER

is now supplied with the

TOM THUMB CAMERA.

These holders are very light and strong and carry two plates. The *Tom Thumb* plate, being 2⅝ inches square, is used not only for small Portraits, Landscapes and General Work, but also for Lantern-Slides. Enlargements with sharp results can be made up to 12x12 with good effects. Being the Smallest and most Compact Detective in the market, its adaptability as a Satchel Camera (*i. e.*, a camera that may be carried easily in a small satchel), is one of its features. Camera, in polished Black Walnut Case, complete, $10.00. Extra Double Plate Holders, 90c. each.

Send for sample picture and circular to the manufacturers,

THE OBRIG CAMERA CO.,
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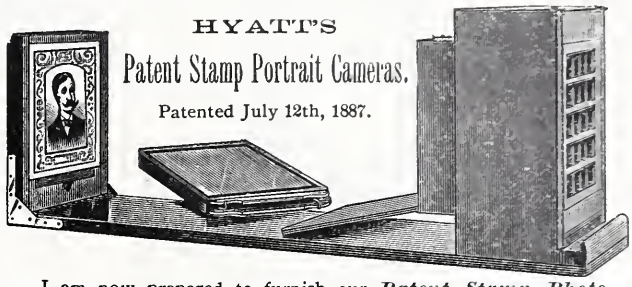
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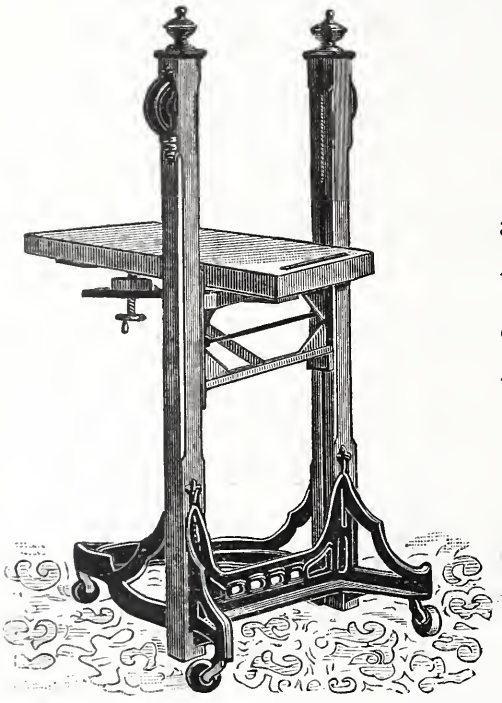
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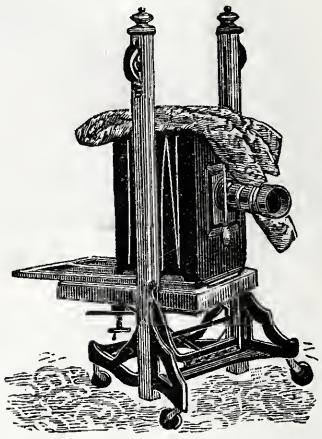
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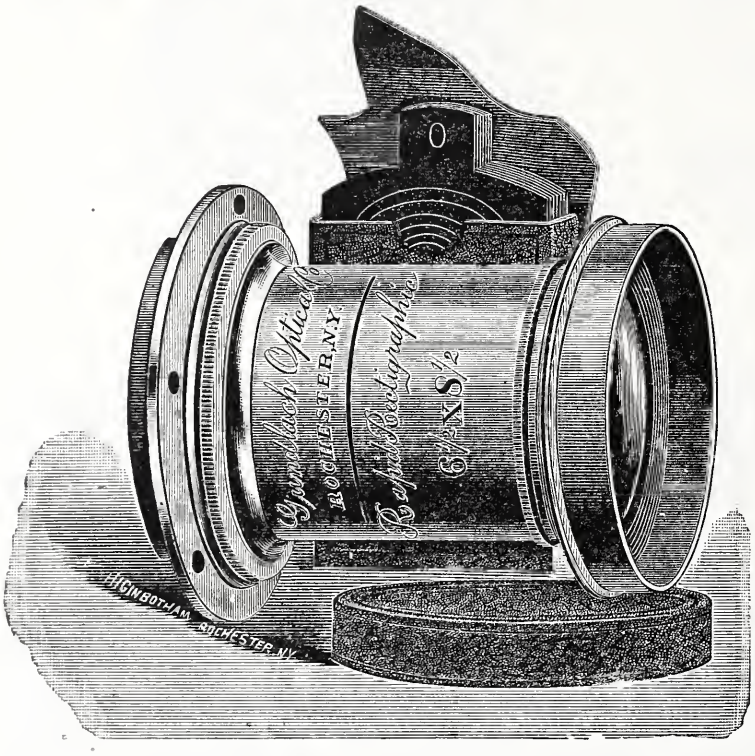
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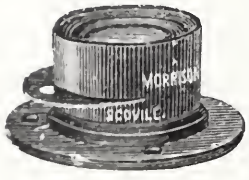
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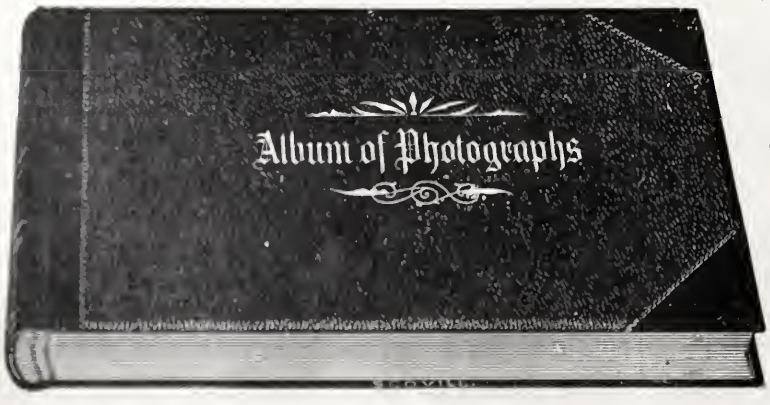


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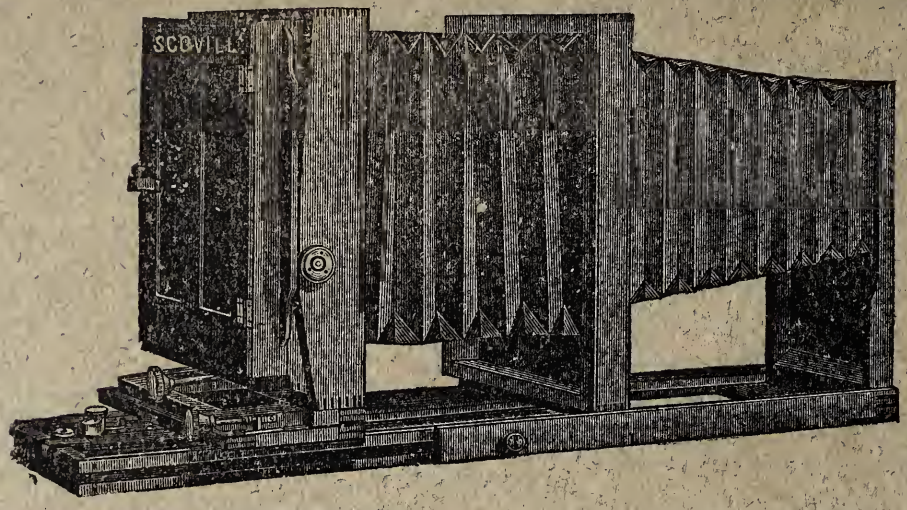
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"Contentment," By Miss Emilie V. Clarkson.
Old Mill on the Bronx River, By John Gardiner.
"Sailing the High Seas Over," By Harry Platt.
The Great Selkirk Glacier Face, By Alexander Henderson.
"Lightning" (Two Pictures), By W. N. Jennings.
"Down in the Meadows."
"Forest Shadows," By G. De Witt.
"In Chautauqua Woods," By "A Chautauquan."
Haines Falls, By W. S. Waterbury.

Besides many Pictures throughout the Advertising pages.

IS IT NOT SO?

That Americans like the best of everything, and when the best costs the least they will buy it without urging. The more distinctively American such an article is, the greater will be their pride in it.

It goes without the saying that a full-jeweled watch is worthy of a good case, and that an Encyclopedia should be bound in something more durable than paper covers.

The **American Annual of Photography** is now in world-wide favor, and commonly spoken of as an "Encyclopedia of Photographic Progress."

It should be ordered with cloth binding (Library Edition), as it has, both in bulk and importance, outgrown paper covers. Other books, containing no more pages or information, sell for $3.00. In attractiveness they will not compare with

The Photographic Times Annual for 1891, which is the most profusely and handsomely illustrated Photographic Book ever published.

THE SCOVILL & ADAMS CO., Publishers,

423 Broome Street, NEW YORK.

...GRAPHIC TIMES VA...



N.Y. PHOTO GRAVURE CO.

Hickman Creek

Kentucky

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, FEBRUARY 13, 1891. No. 491.

HICKMAN CREEK.

OUR frontispiece, this week, is from a negative by Mr. H. B. Pearson, an amateur photographer of Boston, who has recently spent considerable time in the South, especially in Kentucky and the blue grass region.

"Hickman Creek," Mr. Pearson writes, "is a picturesque little stream that winds along the railroad through the blue grass country, and finally empties into the Kentucky River. The men were at work repairing a wall at the base of a large embankment, and gathering rocks from the bed of the stream. I had them hold their positions while I took the picture, and you would have been greatly amused if you could have seen the attitudes which they assumed. Finally, however, I succeeded in posing them to suit, with the exception of one old fellow who could not resist looking up to see me 'shoot the instrument,' as he said."

The negative was on a Carbutt plate developed with pyro and potash. "I use eikonogen only for instantaneous work," Mr. Pearson concludes.

ELAINE.

SUBJECT OF THE P. A. OF A. PRIZE COMPETITION.

THE Executive Committee of the Photographers' Association of America, at its meeting held January 20th, in Buffalo, selected Tennyson's poem of "Lancelot and Elaine" as the subject for illustration in the grand prize competition to be held at the next annual convention of the Association, in Buffalo, next July. The rules to govern the competition will be found in the Supplement to this issue, which is entirely devoted to the executive session of the P. A. of A. committee.

Of course, those who decide to compete for the grand prize will at once read the poem selected from beginning to end. And it would be well to read all the "Idyls of the King," as the collection is called, of which this poem is perhaps the most picturesque, in order to be thoroughly imbued with the spirit of the times which the poems so attractively describe. For this purpose an illustrated edition of the poems will be found more helpful than the mere text, as the illustrations will in some cases prove suggestive, and will give the reader, moreover, a more accurate idea of the costumes of the period, and so forth. Houghton, Mifflin & Company have several editions of Tennyson's poems, the Household Edition,* as it is called, being perhaps the most available, as it is moderate in price, and at the same time is quite fully illustrated. The cuts illustrating this presentation of the poem are taken from this edition.

Of course it is quite impossible, in the space at our disposal, to do more than reprint brief suggestive portions of the poem, calling attention to some lines which, more easily than others, perhaps, may be illustrated by the camera. The very opening lines are an instance of this, as they describe

> "Elaine the fair, Elaine the lovable,
> Elaine, the lily maid of Astolat;"

and a portrait of the heroine to illustrate these lines would make an appropriate and beautiful first picture for a competing collection.

"High in her chamber up a tower to the east
Guarded the sacred shield of Lancelot;
Which first she placed where morning's earliest ray
Might strike it, and awake her with the gleam:
Then fearing rust or soilure fashion'd for it
A case of silk, and braided thereupon
All the devices blazon'd on the shield
In their own tinct, and added, of her wit,
A border fantasy of branch and flower.
* * * * * * *
How came the lily maid by that good shield
Of Lancelot, she that knew not ev'n his name?
He left it with her, when he rode to tilt
For the great diamond in the diamond jousts
Which Arthur had ordain'd, and that by name
Had named them, since a diamond was the prize."

*"The Poetical Works of Alfred Tennyson," Household Edition, with Illustrations, cloth-bound, $1.50. Houghton, Mifflin & Company, Boston and New York. Sent post-paid on receipt of price by the Scovill & Adams Co.

Copyrighted.

The narration follows of how Arthur found the diamond gems "long before they crowned him king;" how the jousts were inaugurated by him, and an explanation of Lancelot's presence at the castle home of Elaine and why he left with her his "azure shield."

The first meeting of Lancelot and Elaine makes a pretty picture. Lancelot is speaking to the gallant young Lavaine, brother of Elaine:

"'So ye will grace me,' answered Lancelot,
Smiling a moment, 'with your fellowship
O'er these waste downs whereon I lost myself,
Then were I glad of you as guide and friend;
And you shall win this diamond—as I hear,
It is a fair large diamond—if ye may,
And yield it to this maiden, if ye will.'
'A fair large diamond,' added plain Sir Torre,
'Such be for queens and not for simple maids.'
Then she, who held her eyes upon the ground,
Elaine, and heard her name so tost about,
Flush'd slightly at the slight disparagement
Before the stranger knight, who, looking at her,
Full courtly, yet not falsely, thus return'd:
'If what is fair be but for what is fair,
And only queens are to be counted so,
Rash were my judgment then, who deem this maid
Might wear as fair jewel as is on earth,
Not violating the bond of like to like.'

He spoke and ceased; the lily maid Elaine,
Won by the mellow voice before she look'd,
Lifted her eyes, and read his lineaments.
* * * *
Marred as he was, he seemed the goodliest man
That ever among ladies ate in hall,
And noblest, when she lifted up her eyes.
However marr'd, of more than twice her years,
Seam'd with an ancient swordcut on the cheek,
And bruised and bronzed, she lifted up her eyes
And loved him, with that love which was her doom."



"High in her chamber up a tower to the east
Guarded the sacred shield of Lancelot."

Another pretty picture is their parting in the morning:

"And all night long his face before her lived,
As when a painter, poring on a face,
Divinely through all hinderance finds the man
Behind it, and so paints him that his face,
The shape and color of a mind and life,
Lives for his children, ever at its best
And fullest; so the face before her lived,
Dark-splendid, speaking in the silence, full
Of noble things, and held her from her sleep,
Till rathe she rose, half-cheated in the thought
She needs must bid farewell to sweet Lavaine.
First as in fear, step after step, she stole
Down the long tower stairs, hesitating;
Anon, she heard Sir Lancelot cry in the court,
'This shield, my friend, where is it?' and Lavaine
Passed inward, as she came from out the tower.
There to his proud horse Lancelot turn'd and smooth'd
The glossy shoulder, humming to himself.
Half-envious of the flattering hand, she drew
Nearer and stood. He looked, and more amazed
Than if seven men had set upon him, saw
The maiden standing in the dewy light.
He had not dream'd she was so beautiful."
* * * * * * *

She stayed a minute, then made a sudden step to the gate. And there—

"Her bright hair blown about the serious face
Yet rosy-kindled with her brother's kiss—
Paused in the gateway, standing by the shield
In silence, while she watch'd their arms far-off
Sparkle, until they dipt below the downs.
Then to her tower she climb'd and took the shield,
There kept it, and so lived in fantasy."

The poet goes on to describe the adventures of Lancelot and Lavaine, how the tourney was fought and the diamond prize was won.

Lancelot is seriously wounded, and is concealed by Lavaine and an old hermit in a poplar grove until he may recover. In the meantime King Arthur has dispatched one of his knights with the diamond prize in search of the victorious knight who had so hardly won it, but who, *incognito*, had gone away, as he thought, to die.

"Gawain the while thro' all the region round
Road with his diamond, wearied of the quest,
Touch'd at all points, except the poplar grove,
And came at last, tho' late, to Astolat:
Whom glittering in enamell'd arms the maid
Glanced at, and cried 'What news from Camelot, lord?

What of the knight with the red sleeve?' 'He won.'
'I knew it,' she said. 'But parted from the jousts
Hurt in the side,' whereat she caught her breath;
Thro' her own side she felt the sharp lance go;
Thereon she smote her hand: wellnigh she swoon'd:
And, while he gazed wonderingly at her, came
The lord of Astolat out, to whom the Prince
Reported who he was, and on what quest
Sent, that he bore the prize and could not find
The victor, but had ridden wildly round
To seek him, and was wearied of the search."

Gawain, discovering Elaine's love for Lancelot, leaves the diamond with her,

"And carolling as he went
A true-love ballad, lightly rode away."

Elaine then seeks for and finds the wounded Lancelot in his hiding place.

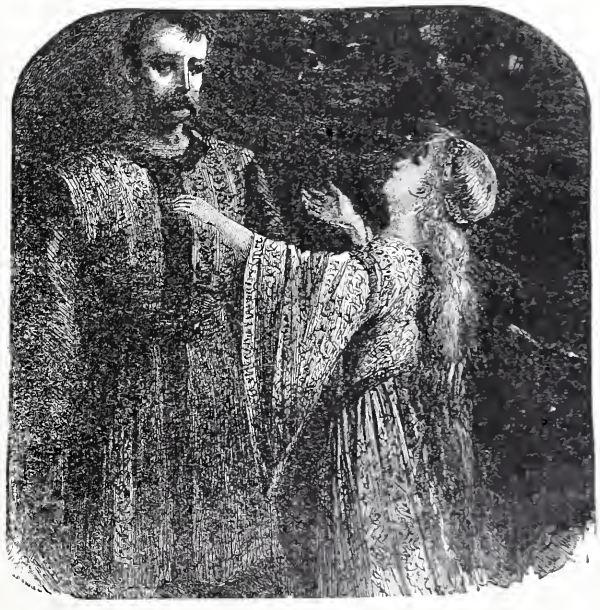
"And when the maid had told him all the tale
Of king and prince, the diamond sent, the quest



Assigned to her not worthy of it, she knelt
Full lowly by the corners of his bed,
And laid the diamond in his open hand.
Her face was near, and as we kiss the child
That does the task assigned, he kissed her face.
At once she slipt like water to the floor.
'Alas,' he said, 'your ride has wearied you.
Rest must you have.' 'No rest for me,' she said;
'Nay, for near you, fair lord, I am at rest.'

* * * * * * *

But when Sir Lancelot's deadly hurt was whole,
To Astolat returning rode the three.
There morn by morn, arraying her sweet self
In that wherein she deemed she looked her best,
She came before Sir Lancelot, for she thought
'If I be loved, these are my festal robes,
If not, the victim's flowersfore be he fall.'
And Lancelot ever prest upon the maid
That she should ask some goodly gift of him
For her own self or hers; 'and do not shun
To speak the wish most dear to your true heart;
Such service have ye done me, that I make
My will of yours, and Prince and Lord am I
In my own land, and what I will I can.'
Then like a ghost she lifted up her face,
But like a ghost without the power to speak.
And Lancelot saw that she withheld her wish,
And bode among them yet a little space
Till he should learn it; and one morn it chanced
He found her in among the garden yews,
And said, 'Delay no longer, speak your wish,
Seeing I must go to-day;' then out she brake:
'Going? and we shall never see you more.
And I must die for want of one bold word.'
'Speak: that I live to hear,' he said, 'is yours.'
Then suddenly and passionately she spoke:
'I have gone mad. I love you: let me die.'
'Ah, sister,' answered Lancelot, 'what is this?'



And innocently extending her white arms,
'Your love,' she said, 'your love—to be your wife.'"

Lancelot goes away.

"So in her tower alone the maiden sat:
His very shield was gone; only the case,
Her own poor work, her empty labor, left.
But still she heard him, still his picture form'd
And grew between her and the pictured wall."

Elaine also soon departs, but not to the land of the living. According to their promise—

"Those two brethren from the chariot took
And on the black decks laid her in her bed,
Set in her hand a lily, o'er her hung
The silken case with braided blazonings,
And kiss'd her quiet brows, and saying to her
'Sister, farewell for ever,' and again
'Farewell, sweet sister,' parted all in tears.
Then rose the dumb old servitor, and the dead
Steer'd by the dumb went upward with the flood."

It is a beautiful poem, full of pictures which the camera may portray, and it is to be hoped that a larger number than ever before took part in these

competitions will this year strive for the Grand Prize. They are sure to win an ample reward, for if only one may obtain the Grand Prize itself, every one who seriously competes will win in the study given and the practice gained a prize that in the end may prove of more value than the Grand Prize itself.

THE NEW YORK CAMERA CLUB'S EXHIBITION.

THE exhibition of photographs, consisting of work by H. P. Robinson, of Tunbridge Wells, England, and John E. Dumont, of Rochester, N. Y., which was recently held under the auspices of the New York Camera Club, in its attractive rooms, at 314 Fifth Avenue, was a notable one in many respects. The pictures of Mr. Dumont, twenty-two in number, effectively framed and entitled, are to be exhibited at the International Exhibition at Vienna; those of Mr. Robinson, numbering sixty-five, were loaned by the Boston Camera Club, and constitute the collection which has been seen at other exhibitions in this country.

Many pictures in both collections are familiar to readers of THE PHOTOGRAHIC TIMES, for excellent reproductions of them have been made in photogravure in this magazine. "Solid Comfort" (now rechristened "Taking His Ease"), "His Own Barber," "The Fisheries Question," and "Stranded," being a few by John E. Dumont which we have reproduced, and which are as good as anything in his entire collection. "A Good Night," 'Bad Luck," "Fabiola," and "The Clarionet Player," are others in the collection of equal merit.

Mr. Robinson's large platinotypes are as fine productions of the camera as we have ever been permitted to see. His "Carolling" may well serve as an inspiration to any aspiring photographer. It is simply a perfect piece of photographic work, and as a picture is entirely satisfactory. "Dawn and Sunset" (published in the Christmas number of THE PHOTOGRAPHIC TIMES for 1888), and "When the Day's Work is Done," both in platinotype, have the very greatest merit, both as to composition and the strictly technical work of photographing. If Mr. Robinson had done nothing besides these three pictures, he would be entitled to the very first rank of photographic artists. The other two platinotypes, "Gossip on the Beach," and "Lobster Boats—Early Morning," are subjects a little more difficult for the camera to reproduce.

Of the albumen prints many have been reproduced in these columns, and many others are familiar from being seen in previous exhibitions. "The Valentine," and "Who could have sent it," "Pamela," and "Dorothy," being figure pictures, are perhaps the most notable of the albumen silver prints. An examination of his landscapes, both with figures, and (a few) without, confirms Mr. Robinson's leadership in this branch of photographic work. We wish all our readers could have examined these pictures for themselves. The exhibition closed Saturday, February 7th.

DR. EMERSON'S RECANTATION.

DR. P. H EMERSON, author of that much discussed book on "Naturalistic Photography," has issued a pamphlet on the "Death of Naturalistic Photography," which is even more remarkable than the book itself.

It may almost be considered a response to the articles by W. J. Stillman which appeared in this magazine several months ago, reviewing Dr. Emerson's book. It would certainly seem that those articles had considerable to do in forming the opinion which he here gives expression to; for he accepts as true more than one of the statements which Mr. Stillman has repeatedly made in regard to the art side of photography.

We reprint the recantation, with some omissions, as it appeared in the *British Journal of Photography*, the asterisks indicating certain sentences which are not reprinted for obvious reasons. The pamphlet is addressed:

TO ALL PHOTOGRAPHERS.

Loving Brethren that were, I salute you. I owe you one apology, oh! my friends, for in the earnestness of my heart I *partly* misled you. You, who stuck by me in storm and stress I shall never forget—if any of you, after this renunciation, seek advice, ask and you shall receive of my best. You, enemies who will now rub your hands with small-souled glee, rub on, till it all ends in imaginary soft-soap. You, whom I have in mistaken zeal attacked, pray forgive and forget.

And now list. I, saner than ever, renounce and adjure all theories, teachings, and views on art written, and first promulgated by me in sundry works, articles, etc., and finally collected in a volume, entitled "Naturalistic Photography." I cast them upon the dust-heap.

I am for the present and future neither idealist, realist, naturalist, nor impressionist—*photographic impressionist*,* indeed!—as though *all* graphic artists were not impressionists, and as if the photographic process could give aught but transcripts more or less literal. Shall I forsooth explain this burning of books?

List, you who have ears to hear and eyes to see.

In the fulness of my heart I dreamed a dream. I thought art might be taught by writing. I was wrong, I confess. I, even I, "the lover of nature"—every one is

* "A term consecrate to charlatans," and especially to photographic impostors, pickpockets, parasites, and vanity intoxicated amateurs.

that now—preached that all art that did not conform to "truth to nature" principle was bad; that was a fatal sermon to many. From this followed again the idea—mistaken, alas!—that photography *pure* (not impure, on rough papers, touched up by clumsy hands) was an art supassing all black and white methods. *Eheu!* That this was ever believed! However, I was sincere, enthusiastic, but mistaken, and I was and am no amateur. I have by the sweat of my brow learned, under a master, something of this thing they call art. Being no amateur, I have therefore left the Camera Club, the home of the "amateur." But ye reasonable ones in photography—some of you *are that*, true and worthy sons of the goddess Science, who has little to do with the goddess Art—you will ask, and with right, Why this thusness? I respect you true workers in science—ye Abneys, Dallmeyers, Hurters, Driffields, Vogels, Jones, Harrisons, Bolas, Waterhouses, Eders and others. I will tell you, for the vulgar mob of pseudo-scientists have done naught but prove their ignorance and show signs of the itch—the itch for publicity and venom.

To you, then, who seek an explanation for my conduct, Art—as Whistler said—*is not* nature, is not necessarily the reproduction or translation of it; much, so very much, that is good art, some of the very best, is not nature at all, nor even based upon it—*vide* Donatello and Hokusai.

The limitations of photography are so great that, though the results may and sometimes do give a certain æsthetic pleasure, the medium must always rank the lowest of all arts, *lower than* any graphic art, for the individuality of the artist is cramped; in short, it can scarcely show itself. Control of the picture is possible to a *slight* degree, by varied focusing, by varying the exposure (but this is working in the dark), by development, I doubt (I agree with Hurter and Driffield, after three and a half months' careful study of the subject), and, lastly, by a certain choice in printing methods.

But the all-vital powers of selection and rejection are *fatally* limited, bound in by fixed and narrow barriers. No differential analysis can be made, no subduing of parts, save by dodging—no emphasis, save by dodging—and that is not pure photography; impure photography is merely a confession of limitations. A friend once said to me, "I feel like taking nearly every photograph and analyzing it." Compare a pen and ink drawing by Rico or Vierge, in Pennel's book. I thought once (Hurter and Driffield have taught me differently) that true values could be obtained and that values could be *altered at will* by *development*. They cannot; therefore, to talk of getting the values in any subject whatever as you wish, and of getting them true to nature, is to talk nonsense.

It is impossible, in most subjects, to alter your values *as you wish*, and to talk of such things now is mere emptiness and puffed-up humbug.

Some amateurs, following Colonel Noverre's *revival* of rough printing papers *last year* (1889), have thought that salvation lay in rough surfaces. Colonel Noverre's dust-heap was ransacked, and we have heard of a "new departure"—a newer "school," and all the bleat of the overweeningly vain "amateur."

If there can be no scientific basis for an art, as some have asserted, Meissonier can claim to be as artistic as Monet, and Monet as Meissonier. The sharp photographer can assert his artistic rights alongside of the veriest "blottist." So all opinions and writings upon art are as the crackling of thorns beneath the pot. In short, I throw my lot in with those who say that photography is a very limited art. I regret deeply that I have to come to this conclusion. Photography is, first of all, the *handmaiden of art and science*. It has and will register new facts of light, form and texture. Pure photography is a scientific method of drawing, and scientists should work on until a true and literal scientific transcript of nature can be made—this by orthochromatics, etc.

It will interest some to hear what I think of some points that have been vexed questions in a war I have, I regret to say, stirred up. Composition, as understood by Burnet and others, I hold to be futility itself, though I can appreciate the attempts to meet the difficulties in this matter. The eternal principles of art I have heard so much of are mere catchwords.

Sharpness versus *Diffusion*.—If the work is for scientific purposes, work sharply; if for amusement, please yourself; if for business, do what will pay.

I have, I regret it deeply, compared photographs to great works of art, and photographers to great artists. It was rash and thoughtless, and my punishment is in having to acknowledge this now. Think of the marvellous dexterity of the man who with pencil, pen and ink, or paint and brush, produces a masterpiece, the drawing equal to that of the lens, the tones in harmony, the color delicate and marvellously beautiful. Read Rood's "Chromatics" for a hint of the manifold difficulties surrounding this subject. Then think of the amateur photographer, who, if clever, can *in a few weeks* turn out good technical work.

It may be asked then what theories on art I have? I answer, at present *none*. What artists I admire? I answer, all good artists and all good art. To what school do I now belong? None. What do I think of writings upon art and art criticisms? Mistakes.

A final word. Suggestions have been made that I get some of my ideas from a book called "Naturalistic Painting." I have a letter in my possession from an artist, wherein is stated clearly and exactly that Mr. Bate* had read a paper of mine "Naturalistic Photography" before his first article appeared in the *Artist*. At the Society of Arts, the other day, a paper was read by Mr. Davison * * * in which my *old* ideas were freely and impudently handed about and no credit given me. It was whispered about by my enemies that this person had originated some of the ideas of naturalistic photography. To enlighten the public I append a quotation from his letter to me on this point. * * * He is now welcome to my cast-off clothes if he likes—he or anybody else. It is with deep regret I do this thing, and it is only as a duty to myself. I justify myself by stating that I wrote privately to Mr. Davison, expostulating with him for freely appropriating my ideas and telling him that if he did not give me full credit at the Society of Arts I should publish a history of the matter. He never replied. He can publish my letter in full if he likes. This was Mr. Davison's reply to a letter I wrote to him and others asking them if they minded me thanking them in public for their support. His reply is dated from the Camera Club, December 16, 1889, *only a year ago*. It is: "I am glad and proud to be identified in any way with naturalistic photography, because I believe in what I understand it more and more clearly to be, but I doubt

* This does not imply that Mr. Bate took any ideas from my paper; on the contrary, I feel sure that his ideas were his own, as were mine.

very much whether anything I have done deserves recognition."

I sent a copy of "Naturalistic Photography" some time ago for review to the Editor of the *Journal of the Society of Arts*, and it got a bad notice. All the ideas offered the other night were thus offered to the *society previously*. Lastly, a special speech, read from a paper by a friend of mine, especially pointing out how I had originated these ideas, was not reported as it was read, the printed report giving altogether a different impression from what the speaker said. Those who heard the original can refer to the speech, as reported in the *Journal of the Society of Arts* —not *Artists*, as Mr. J. Pennell has aptly described it. This sort of treatment, which is nothing new to me, may excuse some of my bitterly written invectives.

Finally. Some of my friends to whom I have recently privately communicated my renunciation have wished to know how it came about. Misgivings seized me after conversations with a great artist after the Paris Exhibition; these were strengthened by the appearance of certain recent researches in psychology, and Hurter and Driffield's papers; and, finally, the exhibition of Hokusai's work and a study of the National Gallery pictures after three-and-a-half months' solitary study of nature in my house-boat did for me.

P. S.—Will every Secretary of every photographic society take four wafers and a sheet of black paper and hide for ever the words "To the Student" in pictures of East Anglian life?

L'ENVOI.

Having taken some earnest photographers a little way into the art world, I feel it my duty to say that, when I have *fully* reconsidered the limited art possibilities of photography and the general philosophy of art, I will write another book; in the meantime, let students avoid all spurious imitations.

EPITAPH.

In Memory of

NATURALISTIC PHOTOGRAPHY,

WHICH RAN A SHORT BUT ACTIVE LIFE,
UPSET MANY CONVENTIONS,
HELPED TO FURTHER MONOCHROME PHOTOGRAPHY TO THE UTMOST OF ITS LIMITED ART BOUNDARIES,
STIRRED MEN TO THINK AND ACT FOR THEMSELVES,
PRODUCED MANY PRIGS AND BUBBLE REPUTATIONS,
EXPOSED THE IGNORANCE OF THE MULTITUDE,
BROUGHT OUT THE LOW MORALITY OF CERTAIN PERSONS IN THE PHOTOGRAPHIC WORLD,
BROKE DOWN THE PREJUDICE OF THE OUTSIDE PUBLIC AGAINST PHOTOGRAPHY'S VERY SLENDER ART CLAIMS,
ENCOURAGED MANY AMATEURS TO BABBLE AND MAKE THE WORDS "ART," "TRUTH," AND "NATURE"
STINK IN THE
NOSTRILS OF SERIOUS ARTISTS,
ENDING BY GIVING A FEW A BRUTAL SORT OF APPREHENSION OF ART,
AND DYING WHEN ITS
ALLOTTED TASK WAS DONE WITH A GIBE ON ITS LIPS,
FOR THE "AMATEUR," THE "PLAGIARIST,"
THE "PRATING TRUE-TO-NATURE MAN,"
THE "IMPRESSIONIST," THE "NATURALIST," THE "IDEALIST," AND THE HUMBUG.

SCHOOLS OF PHOTOGRAPHY.

THE Rev. W. H. Burbank, in his article entitled "Wanted — A Photographic Institute," which appeared in the current number of Wilson's *Photographic Mosaics*, scarcely gives the Chautauqua School of Photography all the credit to which it is entitled, for that school, now five years old and numbering over 150 pupils, is beyond the experimental stage, and may fairly be said to be established on a permanent basis.

It is, so far as I know, the only school of photography at all entitled to the name now existing in this country. I have made careful inquiries as to the condition of other schools reported to be in existence, with the following results, which I give simply in outline.

The Lehigh University had, for a time, a department devoted to photography, in which Professor Holmes instructed, and later, William Bell, of Philadelphia. After Mr. Bell left, however, about three years ago, no further attempts were made to teach photography systematically in this university.

The Technological Institute of Massachusetts, which had been reported to have a school of photography, I found had never made any attempt whatever to teach photography.

Columbia College undertook to establish a school of photography some time ago, but Prof. Chandler tells me that after making all necessary preparations, so few students were obtained that the school was never really organized.

In the Cornell School of Architecture instruction in photography is given to those students who desire it. Prof. Maler has a class during the summer months, but it consists of but few pupils.

Prof. Randall Spaulding at one time instructed the senior class of the Montclair High School in photography, but after a time gave it up.

Of the other schools which were said to exist, I could obtain no definite information. Prof. Himes started a school at Mountain Lake Park, the place of meeting of the Maryland Chautauqua Assembly, and I understand that it is still flourishing in a modest way, under the direction of the L. L. Lines. It, however, lasts but three weeks in the summer.

The Ohio and Michigan assemblies have established similar schools, but they have never contained many pupils at one time.

The Chautauqua School, therefore, is the only school of photography in this country which may compare with the one conducted by Prof. Eder of Vienna.

Our school consists of four classes, in which we instruct, on the average, 150 students a year. The

members of the corresponding class hail from all over the world; the British Empire is well represented, while India, China and Japan have their representatives as well. We have students in the West Indies and the South American States, and there have been as many as thirty-five States of our Union represented in our class. Most of our students are amateurs, of course, though many are engineers, architects, surveyors, draughtsmen and artists; the latter take up photography as an aid to their particular profession. Of the five hundred students, and more, who have been instructed during the five years of our existence, about fifty have been trained for professional work, and are now conducting a profitable business. Our students occupy all positions in society. We have some who are very rich, and others quite poor. They represent all ages and both sexes, and the advancement shown by the annual exhibitions at Chautuaqua, both in artistic and technical skill, testifies to the effectiveness of the school in instructing its pupils. Whoever might doubt the attainments of the school is cordially invited to visit its summer headquarters and examine the annual exhibition of photographs made there by members of the various classes.

Charles Ehrmann.

IMPRESSIONISM IN PHOTOGRAPHY.

(*Continued from page* 68, *and concluded.*)

FURTHER, then, every observer knows the perfection of photography under suitable conditions of light as regards transient action and effects, and in nothing more than cloud forms is the delicacy of its tonal discrimination shown. But Mr. Hamerton would say that all this technical perfection—even if he admitted it—is useless, inasmuch as the camera is incapable of what he calls "idealization of natural form, emphasis in lines, and concentration of natural light and shade." These very vague qualities are, to him, the artist's especial and peculiar work. As I have already treated this matter to some extent, I will here only refer to the etchings in Mr. Hamerton's book for an example in illustration of my argument.

Some of the finest etchings in the work are photographic in character—using photographic in the best sense of giving true tone, drawing and simple naturalness, without any playing with facts—such, for instance, as that by Rembrandt ("Rembrandt Drawing"), those by Lalane, and, in part, that by Whistler. Referring to the Whistler etching of "Billingsgate," Mr. Hamerton notices, with just appreciation, the observant work in the buildings on the quay, and he refers to the harmony in the festoons of the converging cables of the boats as approaching poetical synthesis. I should prefer to call the rendering of these festooned cables a bit of most natural analysis. It is the result of close observation, with a marvellous power of expressing the leading facts exactly as we know them and as Whistler saw them. The exquisite pleasure that this bit of the drawing gives is due to the natural way in which the impression of ropes forming long curves away from the eye and dipping in the stream is reproduced with a simple touch. In short, it is artistic truth—the truth that the artist wanted, unincumbered with local facts of which he would not be conscious save by scientific examination. This is true imitation, an exact hitting off of the leading fact, a power thought to be easy and mechanical, but one as rare in graphic as in literary art. Photography may never have yielded such subtle and exquisite analysis as this, and as the suggestion of heaving water, but photography has yet to get its Whistlers, and it works in a manner very different from etching. In the same etching it is strange that there should be such evidence of slovenliness and want of observation in the character and the form of the boats, which are egregiously unlike any vessel ever found at Billingsgate or elsewhere. Perhaps this would pass for exaltation of the natural images with Mr. Hamerton, but it would be painful to those educated by observation of the character of the objects.

Mr. Hamerton would have conferred lasting credit upon his insight had he, against the rigid prejudices of the time, been able to recognize the just claims of photography, and had he included for comparison in his book, "The Graphic Arts," an example of photography at its best. Others, at any rate, are now able to see in its power for expression of artistic feeling, a power budding under naturalistic influences and a more severe scholarship in the *technique* of the art. If the power of expressing artistic impressions by photography is impossible, then must all the work of the naturalistic school of painters be excluded from the pale of graphic art, for theirs is confessedly "an honest attempt to paint what they see," and photography, artistically employed, has the same aim.

Concerning photographs bearing somewhat the naturalistic character, that is, with truth of tone and suppression of unnatural detail, it is no uncommon thing to hear it said, "Oh yes, they are artistic enough, but they are not photographs." Such is the domination of conventional views. I believe, indeed, that some of our friends are prepared to accept this view, and we have an ingen-

ious suggestion that as there are painter etchers so there should be painter-photographers, a name to be accepted, I presume, either on the *lucus a non lucendo* principle that all painting is rigidly excluded from their plates and prints, or to proclaim that they gladly admit the soft impeachment that their photographs are guilty of looking like sepia drawings.

Be that as it may, I will now only say in conclusion that it is such work that has been most instrumental in breaking down the widespread prejudice against photography as an essentially mechanical, harsh, and vulgar medium for anything like artistic expression, and that it is in that direction we shall have to look for its elevation to its proper place amongst foremost black and white processes. It is from no mere formula of fuzziness or definition that the best work derives, or can derive, its quality; but from the acquisition of artistic facts by observation and experience, facts of light, the limitations in black and white work, the relation of light surfaces, orthochromatics, relation of objects in respect of focus or mental interest, study of form, action, and typical character, the use and application of lenses, knowledge of the subtleties of development with the relation of exposure thereto, and the study of the qualities of printing processes. This is no question of months, but a matter of years, before a man can hope to see clearly what it is he wishes to express, and move freely in expressing his impression. We need not be discouraged that unnatural "exaltations" and combinations are impossible to us. The quality of naturalness will tell in the long run. Men will weary of emphasis, and graphic artists will leave past history, archæology, and fiction to literature or scientific drawing. The keenest æsthetic pleasure is to be derived from the spirited truthful rendering of character, whether in face, figure, or landscape. The things of to-day will be of deeper interest to-morrow. As Emerson says: "It is in vain that we look for genius to reiterate its miracles in the old arts; it is its instinct to find beauty and holiness in new and necessary facts, in the field and roadside, in the shop and mill." The scope of photography is extended. Nature will never go out of fashion. Prejudice will fade, and even one generation ahead will find the value of photographic portraiture, if it be natural and permanent, as it may be. The prospect is worthy of work, devotion, and sacrifice, and, in our enthusiasm, we may be forgiven for indulging visions of a time when, with truth and nature as its watchword still, photography shall have taken to itself such glorious attributes that, with fewer limiting conditions, our every impression of the visible world, light, color, action, and form will come within its scope to express.

George Davison.

PHOTOGRAPHY IN THE COLORS OF NATURE.

[A Lecture delivered before the Franklin Institute.]

I HAVE already made two communications to the Franklin Institute on the subject of photography in colors. My object in lecturing upon it at this time is to go further into its history, to give such accurate knowledge of the subject as will make the force of my criticisms more readily apparent than heretofore, and to better demonstrate my own method. The substance of my lecture might have been more appropriately presented in the form of a paper to be read at a stated meeting of the institute; but a satisfactory presentation of a subject so complex and difficult could not be made in the brief space of time allowed for the reading of such papers, and I offer this excuse for presenting it as a lecture.

Heliochromy—meaning sun-coloring—has been settled upon as a name for processes of photography in natural colors, or in the colors of nature. There are two kinds of heliochromic processes. In one, the light itself produces the colors by direct action upon the sensitive plate. In the other, light does not produce colors, but is made to regulate their distribution and combination. Some of the colors of the spectrum were imperfectly reproduced by a process of the first kind nearly thirty years before the discovery of the daguerreotype process. Seebeck, of Jena, in 1810, found that chloride of silver, after preliminary exposure to white light, is colored a brick-red by prolonged exposure to the red light of the spectrum, and a metallic blue by the blue light. After the discovery of the daguerreotype process, several experimentalists tried so to modify the preparation of the chloride of silver plates as to make them capable of reproducing all the colors of nature. In a photographic text-book, published so long ago as in 1853, I find the following statement: "Even the long-debated question of the reproduction of the natural colors by the agency of light seems on the point of solution. * * * M. Neipce de St. Victor, from whose well-known character as an experimental philosopher much might be expected, has forwarded to London, as we understand, specimens of proofs in which every color is reproduced with a vigor and richness truly wonderful." Similar announcements have been made since that time, but the best

results ever actually shown were nothing more than interesting curiosities. Dr. H. W. Vogel,* who recently had an opportunity to compare some of the latest and most talked-about of these "photographs in natural colors" with the original colored pictures from which they were printed (by contact), says:

"The original is one of those transparent window pictures in bright colors, brought into market by Grimme and Hembel, in Leipsic, as a substitute for glass painting. It represents a Cupid with yellowish-brown hair and wings, and a small blue scarf around the waist, whose ends wave in the wind. He carries an arrow piercing two hearts of ruby color; between the knees he holds a quiver with yellow ornamented opening, and in his left hand the upper part of a large brown cross-bow, with blue and yellow mountings, the lower part of which rests, with the figure, upon an idealistic thistle blossom of red leaves. The stem is of the same color, and the plant shows fresh green leaves. The picture has a pale-blue background, and red, green and yellow ornamentation around the border in very pronounced colors. This border ornamentation affords an excellent means of comparison with the print. The latter, in opposition to the bright original, shows a greenish-gray, partly dark, ground. At first look, one recognizes readily that of all the colors only the red of the original has been distinctly reproduced. But it is not true to nature; it has a copper-red color, and differs decidedly from the vermilion and carmine red of the original. Besides this copper-red, only the blue of the scarf and the mountings of the cross-bow and quiver comes out as a very pale light-blue, with no natural resemblance. The black lines of the border decoration appear alongside of this as a violet-black. These are the tones which, to some extent, have a similarity of color, but with the other colors it is not so favorable. The yellow squares and green trapezoids of the border decoration appear neither yellow nor green, but have a grayish-red tone. The blue fields are not blue, but greenish-gray, like the ground. It is most singular that several parts are reproduced in red, which actually are not red, but brown-yellow—as, for instance, the hair, the wings, the cross-bow, the thistle, etc. The green leaves in the print show no fresh color, and the red leaves of the blossom and the body of Cupid show only a pale flesh-color. * * * The resemblance of the new photographic pictures to natural colors is, therefore, not very favorable. Only two colors can be recognized distinctly in the copy, of which the red is the best; in a less degree the blue, which is weaker as far as the picture is concerned. The blue in the ornamentation around the border, and all other colors, either have not been reproduced at all, or are entirely unlike the original. * * * If I compare the sample before me with the pictures I have seen in 1867 of Niepce de St. Victor, Becquerel and Dr. Zenker, I must confess that those much older productions were richer in color, although the tones deviated likewise considerably from the natural ones."

According to Capt. Abney, the red end of the spectrum produces red by promoting oxidation; the blue end, blue, by its reducing action.* Prof. Mendola† says: "It may at first sight appear improbable that the coincidence between the colors of the spectrum and the colors of the impressed film is a mere accident; but, although this is difficult to believe, I venture to think that it is an accidental coincidence, and nothing more. * * * In the best specimens of these photochromatic spectra that I have seen, the colors were certainly nothing more than approximations to the pure spectrum colors; and even in these spectra some of the colored effect was due to the unaltered ground-color of the film in regions where some particular color had produced no action at all."

F. E. Ives.

(*To be continued.*)

* *Anthony's Bulletin*, 1890, p. 325.

* *Anthony's Bulletin*, 1890, p. 307.

† *Chemistry of Photography*, p. 324.

Correspondence.

"BLUE" PRINTING.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: In your last issue of THE TIMES I notice an article on the cyanotype or "blue" print.

This strikes me right at home, as I have made in the past few years some thousands, and I have found that success depends, not so much on formula, paper or careful spreading of chemical, as on drying it quickly after preparation. I use the following formula and Saxe or Rives paper, and dry it near a stove or steam radiator. Mix in one bottle a solution of 2¼ ounces of water to each 1 ounce of citrate of iron and ammonia, and in another 1 ounce of *red* prussiate of potash to each 8 ounces water; these solutions, if well corked, will keep indefinitely. It is *not* necessary to use it by gas or lamplight, daylight is safe if you are at all careful. Mix one part of the iron solution with two parts of the potash just before using, and with a soft sponge flow over the surface of the paper a heavy coat, so heavy that it stands in small puddles all over it; then squeeze the sponge quite dry and remove the superfluous chemical, stroking in one direction, which will leave the paper covered with a smooth even coat and nearly dry; hang it before a stove, radiator or over a register, face toward the heat, and when dry the back should not show any signs of soaking through. When dry it will keep well in a dark, dry box, and will make clear, brilliant prints. It is

even better twenty-four hours after preparation, as it does not fade so much in washing. These can be turned to a beautiful green by printing very deeply and placing after washing in a weak sulphuric acid solution (acid must be very weak), and may be bleached white by the use of a solution of sal soda. I have also a formula for turning the prints a soft rich brown, but I have never used it and can not, therefore, recommend it, but have seen prints made with it which were very good indeed. If any of your readers do not have success with blues would be glad to help them in any way.

Yours very truly.

G. Lewis Holmes.

LOCKPORT, N. Y., Feb. 3, 1891.

Notes and News.

"It is always an interesting journal," says *The Waterbury American* of THE PHOTOGRAPHIC TIMES.

The Council of the American Photographic Conference met at the rooms of the Society of Amateur Photographers of New York, Wednesday morning, February 11th, at 10 o'clock.

James U. Stead has entirely refitted his well-known gallery at 383 Sixth Avenue, New York City.

The New York Camera Club held an exhibition of lantern slides made by James E. Brush, Monday evening, February 9th, which was much enjoyed by all present.

It Is Said that the Duke of Orleans, during his recent visit to this country, made four hundred snap shots, which resulted in three hundred blanks and fifty unrecognizable images; the other fifty exposures resulted in passable views.

Mr. Alfred Stieglitz, of Vienna, read a paper on photographic studies, taken on orthochromatic plates, and printed on platinum, at the regular monthly meeting of the Society of Amateur Photographers of New York, February 10th.

Prof. D. L. Elmendorf gave an illustrated lecture on "Two Weeks in Holland" (July, 1890), at a regular meeting of the Photographical Section of the American Institute, Thursday evening, February 3d.

The Niagara Camera Club, of Lockport, N. Y., is a flourishing organization, with the following officers: Rev. J. W. Sanborn, President; W. H. Case, Vice-President; C. M. Van Valkenburg Treasurer; G. L. Holmes, Secretary; A. L. Davison, Captain.

The Society of Amateur Photographers of New York will give an illustrated lecture, entitled "Rambles in Spain and Morocco," on Saturday evening, March 7th, at Chickering Hall.

The views were taken last summer by one of the members, Mr. Richard H. Lawrence, and promise to be very interesting.

Rev. Dr. E. C. Bolles will describe the views.

The Law Suit of Miss Ida Moore against A. B. Rugg, a photographer of Minneapolis, for damages for disposing of her photograph without her permission, was dismissed on the motion of Miss Moore's lawyer, since it was apparent that only nominal damages could be collected in any case.

The James F. Ryder Company has purchased the business heretofore known as "J. F. Ryder's Gallery of Art and Photography," and it will continue the business at the same location—239 Superior Street, Cleveland. J. F. Ryder is President; F. S. Jennings, Vice-President; Thomas Hughes, Secretary, and Thomas Natt, Treasurer of the new company.

D. B. Millard, one of the most popular and best photographers of Scranton, Pa., is dead. He died Saturday, January 24th, after a brief illness. As a photographer the deceased stood at the pinnacle of his profession, and as a citizen he enjoyed the esteem and well-wishes of hosts of acquaintances. His sudden taking off was due to heart failure.—*Scranton Times.*

John P. Percival, the English photographer who was found unconscious from gas in his room in the New England Hotel, on Saturday, January 31st, died at the Chambers Street Hospital soon after. He was born in London sixty years ago and came here when he was twenty-five years old. He had been a soldier in India. Recently he had been in business in Waltham, Mass., and had sold out and removed to a house in Essex Street, Brooklyn, with his New England wife. His daughter is the wife of an artist in this city. He had been in poor health and had become discouraged because of obstacles in the way of his efforts to start in business in this city.—*New York Sun.*

An Interesting Item.—Charles D. Kirkland, a local photographer, has made and perfected a discovery which will have the effect of placing the business on a new basis. He has concocted an emulsion which permits the use of paper costing $6 a ream instead of the first quality, at $44. He began experimenting twenty years ago, but let the idea drop. He was stimulated to fresh endeavor by an advance in the price of the paper last fall, and his recent labors have been crowned with success. The emulsion greatly reduces the quantity of valuable chemicals used, and only one-fifth the baths are required. The work is better. Mr. Kirkland shows some faultless pictures by the new process. They carry every detail of the negative. Mr. Kirkland's formula is protected by patent. He will place on the market at once both the prepared paper and the emulsion. It is likely that he will go to Chicago, selling out his gallery here. Cheyenne men who know anything of photographing say that Kirkland has struck it rich.—*Denver Times.*

Camera Club (London) Photographic Conference.—The 1891 conference will be held in the theatre of the Society of Arts (by kind permission of the council), on Tuesday and Wednesday, April 7th and 8th, under the presidency of Capt. W. de W. Abney, C.B., R.E., D.C.L., F.R.S. On Monday, April 6th, at 8.30 P.M., there will be a special smoking concert at the new club house, Charing Cross Road, and the Members' Annual Exhibition of

Photographs will be opened. On Tuesday, April 7th, at 2 P.M., the president will open the conference at the Society of Arts, and papers will be read from 2 to 5.30 P.M. In the evening a lantern-slide exhibition will be given in the theatre of the Society of Arts, for which special tickets may be obtained. On Wednesday, April 8th, at 2 P.M., the conference will be renewed. At 7.30 the annual dinner for members and friends will be held. A complete programme will be issued later and distributed. All photographers are cordially invited to attend and take part in the discussions at the Society of Arts.

The Ultra-Violet Rays.—Messrs. Lenard & Wolf have, according to the *Revue Général des Sciences*, been examining certain phenomena described by Hertz & Nodon, and find that ultra-violet light has the power of pulverizing certain bodies, and that electricity is carried off by particles torn from their surface. Copper appears to be especially sensitive to the action in question, and is very decidedly comminated under the action of the ultra-violet rays.

Photographing in China.—The *Progrès Photographique* gives us an amusing account of the difficulties with which photographers in China have to contend. It is almost impossible to prevail upon a Chinaman to allow himself to be "taken." The reason of this reluctance is the universal prevalence of the opinion that in being photographed the subject is liable to lose a portion of his soul, which becomes fixed in the photograph and withdrawn for ever from its original possessor. It is evident that professional photography stands on a much higher level in China than is the case in this country, for *soul* is just the very thing that so many of our portraits do *not* succeed in fixing.

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF CHICAGO.

THE regular monthly meeting of this society was held Wednesday evening, February 4th, at the store of James H. Smith & Co., 184 Wabash Avenue. Thomas Harrison was elected a member.

The Committee on Photographic Exhibit reported progress, and that they filed application for required space as soon as the necessary blanks were furnished by the commissioners.

A communication from the American Photographic Conference was referred to the executive committee with power to act. The following were appointed a committee to arrange for a systematic test and comparison of the orthochromatic and normal dry plate: Gayton A. Douglass, F. H. Davies, Charles E. Smith.

Prof. N. Gray Bartlett then gave a short history of the diazotype or primuline printing process (history and formula have been published in THE TIMES), demonstrating the preparation of the paper and fabrics, and showing the development of a number of prints made during the day, the sensitizing solution being:

Primuline	5 grains
Hot water	1 ounce

Paper or fabrics immersed or floated for from two to five minutes. Then the same treatment with a solution made as follows:

Sodium nitrite	15 grains
Water	8 ounces
Oxalic acid	25 grains
Water	½ ounce

The paper or fabric is then dried and printed as usual, only if you require a positive print you must use a positive, for if a negative is used the resulting print is a negative. The prepared prints on both paper and cloth were developed in the solutions named and with results noted. The action of the developers is almost instantaneous, and after development only a short washing is necessary.

DEVELOPERS.

Carbolic acid and water	produces yellow
Eikonogen and water	produces black
Resorcin and water	produces orange
Betanaphthol	produces red

The primrose color always remains, and by many is thought objectionable.

Prof. Bartlett thought the process would lead to the discovery of some of the coal tar products or analine dyes that would, by the action of light, leave a white ground.

Prof. Bartlett stated that his experiments with phenylthiocarbamide and thio-sinamine in developing reversed positions, after Colonel Waterhouse's method, were not successful. He presumed results could be obtained that were satisfactory, but he had met with no encouragement.

A vote of thanks was passed to Prof. Bartlett.

In reply to a question Prof. Bartlett stated that the correct printing of primuline was a matter of practice; usually the faint appearance of the image was enough; and that he had given an average of fifteen minutes exposure in bright sunlight. He was asked as to the character of negatives necessary to produce the best prints on platinum paper. He replied that for the Pizzighelli paper a good strong negative must be used—that a thin negative gave poor prints. He said the demand for platinum prints was increasing, especially in Europe, but that owing to the great cost of platinum it would make slow progress.

Adjourned.

"*A.*"

CHICAGO SECTION OF THE ASTRONOMICAL SOCIETY OF THE PACIFIC.

THE third regular meeting of this society was held in the club room of the Sherman House, Monday evening, February 2d. Seventy ladies and gentlemen interested in astronomy were present. A large number of photographs and bromides were on exhibition, showing the moon; photosphere of the sun; the Lick telescope; Lick and Dearborn observatories, etc. Mr. Douglass showed his clip for holding an open or fixed glass while observing. It can be set at any angle, and is fastened to the top of any camera tripod, allowing the observer to be seated and have a steady glass while at work.

Mr. George E. Hale, of the Kenwood Observatory, gave a very entertaining and instructive lecture on "Recent Discoveries of Spectrum Photography in Astronomy," illustrated with the optical lanterns and slides of star spectrum, made by himself, and at the Harvard Observatory by Prof. Pickering. This newly organized section has a membership of forty, and new members being added rapidly. The officers are Gayton A. Douglass, Chairman; George E. Hale, Secretary; Profs. Thevving, Ervell and Pike, Executive Committee.

"*A.*"

The Editorial Table.

Fotografisk Tidskrifts Årsbok. Albin Roosval, Ed. R. Blaedel & Co., Stockholm, publishers.

It is the first photographic year-book published in a Scandinavian language, and contains, besides a number of instructive articles on celestial photography and photomicrography, others treating on a variety of artistic and technical subjects. There are also some tables, useful recipes and a report of societies in Sweden and Norway.

The book is embellished with several excellent lichtdrucks and autotypes.

From Dr. Charles L. Mitchell, manufacturing chemist, at 1016 Cherry Street, Philadelphia, we have received a list of his standard photographic specialties, including a concentrated eikonogen developer for negatives, transparencies, lantern slides, etc.; a sulpho-pyrogallol developer; a standard hydrochonon developer, a toning fluid, etc.

In the Fourth Annual Meeting of the Athletic Association of the University of Pensylvania, among other illustrations we notice one, being the south front of the Grand Opera House, Paris, from an instantaneous photograph on a Carbutt Eclipse Film. It is an excellent photograph, but is greatly marred by the color of ink—a deep pink—in which it is printed.

From Col. J. Waterhouse, of Calcutta, we have received, with "the best wishes for the New Year, two beautiful photo-etchings, from the colonel's own negatives. One shows the Hooghly Railway Bridge, and the other is a most artistic view in the Royal Botanical Garden at Calcutta. A native in the characteristic national costume is seen in the foreground in this picture, and the atmospheric effect is unusually fine. Both engravings are almost perfect in their mechanical reproduction. We shall hope to show our readers a specimen of Col. Waterhouse's work as a frontispiece to this magazine before many weeks have passed.

Record of Photographic Patents.

445,550. Photographic Camera. Willard H. Fuller, Passaic, N. J., Assignor to Scovill & Adams Co., New York, N. Y.

445,561. Camera attachment. Charles N. Knox, Nashville, Tenn.

445,581. Photographic Printing Apparatus. Richard J. Wynkoop and John M. Kemp, Paterson, N. J.

445,639. Photographic Cabinet. Olaf M. Herberg, Hendrum, Minn.

445,805. Photographic Background. William G. Entrekin, Philadelphia, Pa.

445,861. Cabinet for photographic plateholders, negatives and stock. George H. Richards, Pa.

445,911. Photographic Apparatus. Edward V. Swinden and Joseph Earp, Liverpool, England.

"Your valuable publication is a welcome weekly visitor, and its pages, full of instruction, are very interesting."—I. S. Brown, Portland, Oregon.

Queries and Answers.

24 LUX.—Bromide paper exposed to the light of a gas flame at a distance of 12 inches requires an exposure of 15 seconds, but when I remove the printing frame to a distance of 24 inches, or still further, it takes an enormously long time to expose properly. What is the cause of it?

24 *Answer.*—The intensity of light diminishes inversely with the square of the distance from its source.

25 EOSINE.—What is the best protective screen for a dark-room lamp, when orthochromatic plates are developed?

25 *Answer.*—For yellow sensitive plates two copper-flashed ruby glasses, and between them a tolerably thick opal glass will do very well. For red sensitive plates two ruby glasses, and between them one of cobalt blue color. This screen requires a very strong light behind it, for that passing through it has but very little power, and belongs almost to the ultra red end of the spectrum. We have developed plates stained with pure cyanine in the shadow of the Peerless lantern screened, as Victor Schumann recommends, with two thicknesses of brown tissue paper. If developing is done at sufficient distance from the light source, and everything else is in good condition, there is no danger of the plate fogging.

26 PERPLEXED.—What is the difference between pure ter-chloride of gold and chloride of gold and sodium? I find that either of them tone equally well self-prepared or ready sensitized albumen paper, and that both of them are apt to bring forth the same difficulties in toning.

26 *Answer.*—Pure ter-chloride of gold contains about 47 per cent. of metallic gold, the double salt—we mean the commercial article—not more than from 17 to 27 per cent. One grain of the former will tone a sheet of albumen paper of 18 x 22 inches. Of the double salt you want a proportionately larger amount. This is practically the only difference existing. For further information read the appendix to the second edition of the "Photographic Instructor."

27 H. G. S. asks for a formula to prepare a waterproof pasteboard?

27 *Answer.*—In reply we may say that there have been several such formulas prepared, one being by O. S. Follett, and now owned, we believe, by the A. M. Collins Manufacturing Company. The same company has also a secret process for making waterproof cardboard which seems to be all that is desired. The following is a formula which has been recommended to us, but not having tried it, we cannot say how good it may be. Give the cardboard a thin coat of the following mixture: Four parts of slaked lime, three parts of skimmed milk, with a very little alum. A soft brush should be used in applying the mixture, and the cardboard should be left to dry thoroughly before using.

The Cyclopedic Index.—"It is very handy."—C. W. GRANT, Buffalo, N. Y.

"Very complete."—C. D. CHENEY, D. D. S., Hoboken, N. J.

THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

TWELFTH ANNUAL CONVENTION.

(JULY 14th TO 17th INCLUSIVE.)

"IROQUOIS HOTEL,"

BUFFALO, January 21st, 1891.

EXECUTIVE SESSION.

MEETING called to order by the President. All officers present, namely:

GEORGE H. HASTINGS, President; S. L. STEIN, 1st Vice President; W. STUBER, 2d Vice President; G. M. CARLISLE, Treasurer, and W. A. DAVIS, Secretary.

Address of welcome by the President. Reports of the Secretary and Treasurer were then read. President appointed Messrs. STEIN, STUBER and DAVIS as Auditing Committee, who reported that they had found the same correct, and the Committee were discharged.

The next Convention will be held on July 14th, 15th, 16th and 17th, at the Buffalo Park Association, Buffalo, New York. Dr. A. H. ELLIOTT, associate Editor Anthony's *Bulletin*, was appointed a Committee to report on the "Progress of Photography."

AWARDS FOR AND RULES GOVERNING EXHIBITS AND SUGGESTIONS, TO ALL EXHIBITORS IN THE ART DEPARTMENT.

LIST of awards for 1891 are as follows: The Grand Prize will be a Group in Bronze, with Marble Pedestal, "THE VICTOR," value $175, governed by the following rules and regulations:

Competitors for this award shall exhibit three plain photographs, illustrating Tennyson's Poem "Elaine."

The size to be not less than 13 or more than 22 inches in length.

The pictures must be framed either with or without glass. The award to be made for the most meritorious collection.

A diploma will be awarded for the second best collection.

Class A.—A beautiful marble bust, value $125, for the best exhibit of genre photographs.

Competitors for this class shall exhibit six photographs. The subjects are to be chosen by the photographer and appropriately inscribed; and size to be not less than 13 or more than 22 inches in length, and framed, with or without glass. The award to be made for the most meritorious collection.

A diploma will be awarded for the second best collection.

Class B.—One gold, one silver and one bronze medal, for the best collection of portrait photography; size 14 x 17 inches or larger.

Class C.—One gold, one silver, and one bronze medal, for the best collection of portrait photography; size 11 x 14 inches or smaller.

Class D.—One gold medal for the best collection of landscape photographs with figures introduced.

Class E.—One silver and one bronze medal for the best collection of landscape photographs without figures.

One silver medal for the best collection of marine views.

One silver medal for the best collection of architectural views.

Class F.—One silver and one bronze medal for the six best plain enlargements, either in silver, bromide, albumen, carbon, or platinum; the size to be not less than 18 x 22 inches.

PRIZES FOR EMPLOYEES.

Class G.—One gold medal to the operator making and exhibiting the three most artistic photographs; size to be not less than 13 or more than 22 inches in length.

Class H.—One silver medal to the retoucher for the best set of six retouched negatives with prints from unretouched and retouched negatives.

Class I.—One silver medal to the printer for the most artistic printing, six prints to be exhibited.

Pictures exhibited by employees cannot be used from negatives from which employers exhibit.

Class J.—One silver medal for the best improvement in photographic appliances introduced since the last convention.

Class K.—Three prizes to be awarded for the best foreign exhibit of portrait photography, framed or unframed, delivered to the association free from all charges.

Exhibits in this class will be admitted to the United States free, by sending the same directed to W. A. Davis, Secretary of the Photographers' Association of America, Buffalo Park Association, Buffalo, N. Y., U. S. A.

A diploma will be awarded for the most tastefully arranged exhibit.

Competitors for the Grand Prize or Class A cannot enter in Classes B or C.

Competitors in all classes except Class K must be members residing in the United States or Canada.

Applications for space must be made to S. L. Stein, 310 State Street, Milwaukee, Wis., who will forward blanks for entries and also send the number under which the exhibit is to be displayed.

The exhibitor must attach this number to his exhibit.

Entries to close on Saturday, June 20, 1891.

No space to be allowed after that time for exhibits.

All exhibits must be shipped so as to reach the exhibition building on July 8th, the Wednesday preceding the opening of the convention, and all charges MUST be prepaid.

Exhibitors' pictures are to be known to the Judges by number only. No name to be upon the pictures until after the awards are made.

The Executive Committee who will appoint the Judges will hand in their reports on or before the afternoon of the third day to the President.

Should any exhibitor influence in any way, directly or indirectly, the Judges during their term of office, in favor of any exhibit, it shall be the duty of the Judges to strike such exhibit or exhibits from the lists.

RULES GOVERNING THE JUDGES IN THE GRAND PRIZE.

The points to be considered are: 1st, Historic; 2d, Originality; 3d, Composition; 4th, Lighting; 5th, Technique.

Ten marks to be the highest for any one point, consequently 50 marks the most that can be given for any one picture.

The standard of this award must be 35 marks out of a possible 50.

RULES GOVERNING THE JUDGES IN CLASS A.

The points to be considered are: 1st, Originality; 2d, Composition; 3d, Lighting; 4th, Technique.

Ten marks to be the highest for any one point, consequently 40 marks the most that can be given to any one picture.

RULES GOVERNING THE JUDGES IN OTHER CLASSES.

The points to be considered are: 1st, Lighting; 2d, Posing; 3d, Chemical Effect; 4th, General Effects or Finish.

All photographs exhibited must be from negatives made since the Eleventh Annual Convention, held at Washington, D. C., August, 1890.

All Art Exhibits must be sent to S. L. Stein, Art Department, Photographers' Association of America, care of Buffalo Park Association, Buffalo, N. Y., all charges prepaid.

Exhibits for the stock department to be shipped in care of W. A. Davis, Secretary Photographers' Association of America, care of Buffalo Park Association, Buffalo, N. Y., and placed in position by 10 A.M., July 14, all charges prepaid.

The art and stock department will be closed each day from 10 o'clock A.M. to 12 o'clock M., to secure a large attendance at the business meetings.

As will be seen from above notes, there has been a very liberal classification of art productions and awards for same, and it is hoped and expected that there will be a ready response, so that long before the convention opens a knowledge of what is to come will enable the officers to be fully prepared for all entries, that each one may be properly classified and hung.

It is requested that all exhibitors send with their work screw eyes and cord, so that the committee may not be put to trouble and expense, as it is the plan to have all exhibits hung before the opening of the convention, thereby saving noise and time, and having all members in attendance at the business sessions. It is very natural for all to postpone sending exhibits until within a few days of the opening of the Exhibition; but arrangements will be made at the railroad stations in Buffalo to hold anything sent until the proper time to send them to the hall, so that no one need feel any uncertainty about the safety or disposition of the same.

Have your box covers screwed instead of nailed; put your home address on under side of box cover for return of pictures; help your committee all you can by promptly forwarding entries and exhibits. There is enough for them to do even if these rules and suggestions are fully carried out.

The Executive Committee are very desirous of having this convention the best ever held, and earnestly request that every one will make an extra effort to have a finer display of artistic photographs than has been exhibited in the past.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

W. I. LINCOLN ADAMS, Editor.

Issued every Friday.
Monthly (unillustrated) edition issued on the last Friday of the month.

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Weekly (illustrated) edition, for one year $5 00
" " " " six months 2 50
" " " one month's trial 50
Monthly (unillustrated) edition, for one year 3 00
Single copy, Weekly, 15 cents; Monthly, 25 cents.
The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.
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WE WANT every photographer in this country to receive THE PHOTOGRAPHIC TIMES, and therefore make this special offer to those who as yet are unfamiliar with it.

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Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.

All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

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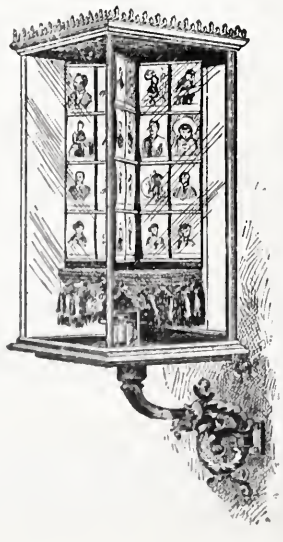
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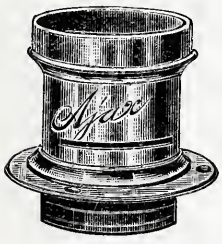
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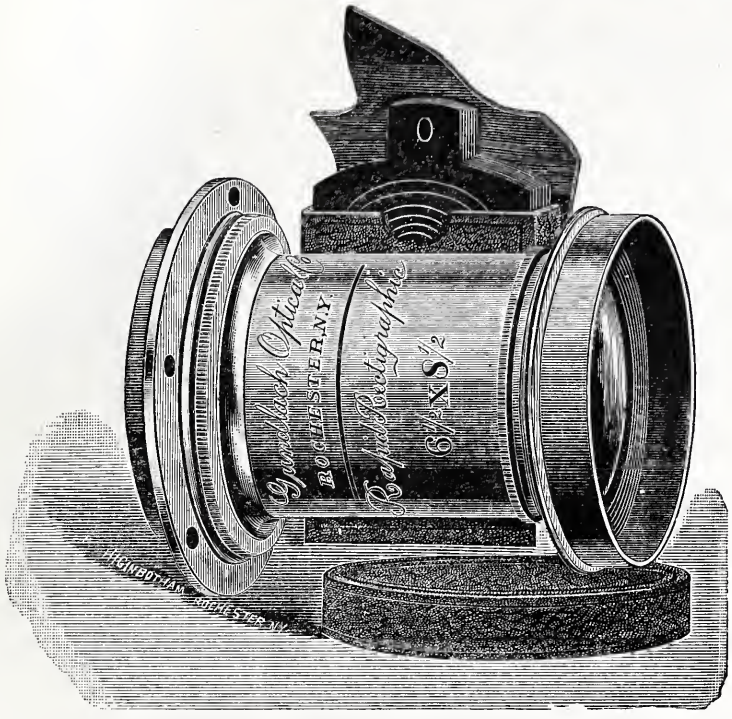
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By Pilkington Jackson.

II. Forbidden Fruit. (Photogravure.)
From painting by E. Grutzner.

III. "I Beg Pardon, Monsieur, but what is the Horse's Name?"
From drawing by W. de Meza. (Photogravure.)
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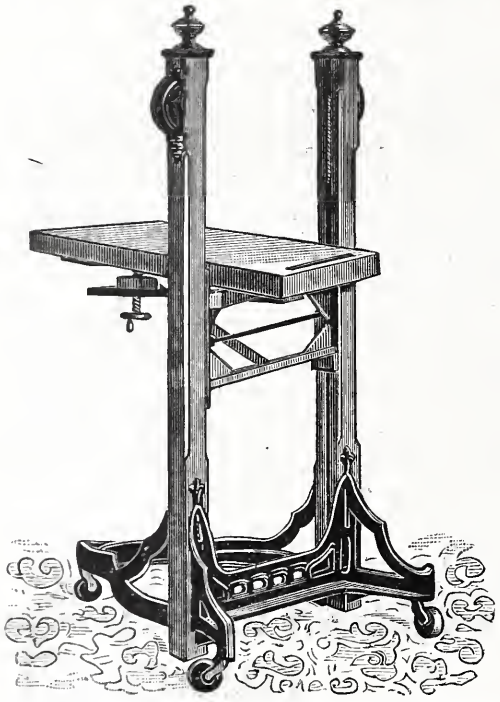
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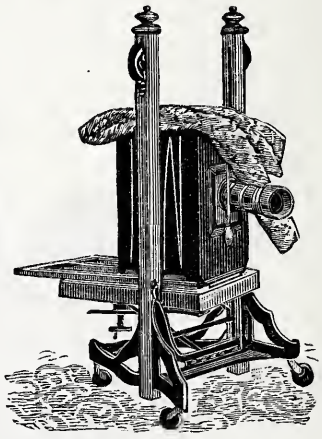
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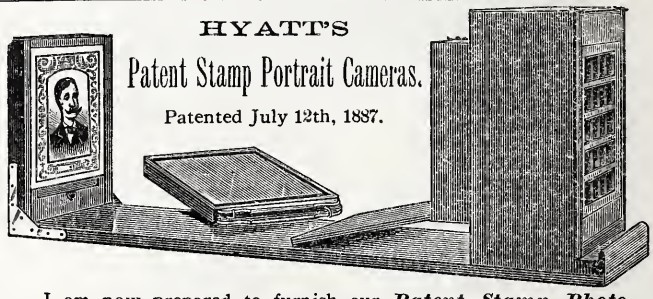
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TO THE

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FOR 1891.

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THE MILKY WAY.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, FEBRUARY 20, 1891. No. 492.

THE MILKY WAY.

WE present our readers this week with a reproduction of the only photograph of the cloud forms of the Milky Way ever made. It is from a positive by Professor E. C. Barnard, of the Lick Observatory, on Mount Hamilton, and is sent to us through the courtesy of Professor Holden, the director of the Observatory. The negative was made August 1, 1889, with a 6-inch portrait lens, and the position of the center of the picture is

Right Ascension, 17 h. 56 m.
South Declination, 28 deg.

The exposure was three hours and seven minutes in duration.

The following description of several photographs made at the Lick Observatory is from two articles contributed by Professor Barnard to the Pub. A. S. P. and the monthly notices of the Royal Astronomical Society :

It seems desirable to give a brief description of the photographs of the Milky Way made by me at the Lick Observatory in 1889, and to call attention to their special and important points which might otherwise be overlooked by those not familiar with celestial photography, and thus their value be under-estimated for the purpose for which they were made. It was intended to show, as far as possible by photography, the wonderful and complex structure of the Milky Way.

One very important feature, and one which must not be overlooked, is that these are the only photographs ever made, here or elsewhere, which show at all the true Milky Way.

The structure of the Milky Way is invisible in the telescope because of the limited field of view; for we see, comparatively, only a few of the individual stars whose combined light illuminates the sky and aids in giving the clouded appearance which is so conspicuous to the naked eye. And here it may not be unimportant to remark that the vast majority of the stars whose light goes to make up the true Milky Way cannot be seen in any telescope ever constructed—they are individually so small and faint. It is therefore impossible to obtain any idea of the structure of the Milky Way from telescopic observations alone, because of the limited field and the faintness of the smaller stars.

In a photographic experience of twenty-five years, I have never seen anything more deceptive to photograph than the Milky Way. From some of the first experiments, made with a small camera, it seemed impossible to photograph it, the sensitive plate apparently picking out only the individual points of light. To the eye, the Milky Way is a bright and conspicuous object, and at first it would seem as if an impression of it would be made with a comparatively short exposure. A few experiments, however, showed the hopelessness of this. If we consider that this nebulous appearance of the sky is due to an infinite number of invisible points of light, and not to an illuminated background such as nebular light, it would seem that a photograph of the true Milky Way would be impossible. It is, in fact, by no means easy—for the exposure must be very long, and the instrument must be watched and kept constantly fixed on some one star of the proposed picture every moment for several hours; and when all this is properly done, the plate requires the utmost delicacy of treatment in developing.

The possibility of photographing the true Milky Way at all is explained by the following theory:

If we look at a dense cluster of stars, too closely packed for the instrument to distinguish the steller points, it appears as a nebula, or is continuous in its light. Increase, now, the dimensions of the telescope, and the nebulosity disappears and we see each individual point of light. In the Milky Way the stars are crowded together by distance. If we could approach it, which we can do, in a sense, by the telescope, we should separate the stars in proportion to the lessening of our distance, or the size of our telescope. The eye is too feeble to pick out the individual stars of the Milky Way, or to separate them; it therefore perceives only a nebulous or clouded appearance, and is really impressed by a *quantity* of light which is made up altogether of individually invisible sources. The sensitive plate is not thus deceived, for its action depends upon the *intensity* of the light, and it therefore picks out each individual point, if the lens is good.

Applying these remarks now strictly to the Milky Way, we should find that by continuing the exposure long enough, the multitudes of stellar points which form the cloud masses would come into view so thickly on the plate as to blend together and form a more or less continuous surface, thus giving the exact cloud structures as they exist in the heavens. Now, a lens of the same light-ratio, but giving a larger scale, with the same exposure as the foregoing, would show only a great number of separate stars, without indicating anything of the cloud structure

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proper. A much longer exposure would, therefore, be required to bring other stars into view sufficiently numerous to fill the spaces before the true structure would again appear. We should, therefore, finally come to a point, by increasing our scale, at which no exposure possible would be sufficiently long to reproduce the true Milky Way. By increasing the scale beyond a certain limit, the characteristic structure is lost.

But there is also a certain point where the lens cannot show the true structure, because of the smallness of scale and the deficiency of penetrating power; that is to say, a very small lens would not show the structure with sufficient distinctness to be of any special value. The photography, therefore, of the true Milky Way must be confined to instruments of medium dimensions—with large apertures and small focal lengths—until our plates can be made much more sensitive, or the exposures extended through several nights.

The splendid pictures made by the Henry Brothers at Paris, considered as photographs of the stars, have never been equaled by any other astronomers with any telescope. The stars are wonderfully sharp and round, and a print from one of their negatives is almost as perfect as if made from a steel plate. I have before me now one of their photographs of a portion of the Milky Way in *Cygnus*. It is a perfect specimen of the photographic art, and shows a vast number of stars on a black sky ; but there is no trace, or even a suggestion of the Milky Way proper, and it might fairly refer to any other portion of the heavens than the Milky Way save for the number of stars depicted. This picture represents the finest work yet done in stellar photography.

In the photographs made with the 6-inch portrait lens, besides myriads of stars, there are shown, for the first time, the vast and wonderful cloud forms, with all their remarkable structure of lanes, holes and black gaps and sprays of stars. They present to us these forms in all their delicacy and beauty, as no eye or telescope can ever hope to see them ; while the individual stars, near the middle of the plates, are as round and perfect as are those made at Paris.

The lens used in this work was of the ordinary portrait combination, having an aperture of 6 inches and a focal length of 31 inches. This lens, attached to a box of the proper size, was firmly strapped to the tube of the 6½-inch equatorial. As no driving clock is so perfect as to keep a telescope moving with the apparent motion of a star for any considerable length of time, it was necessary to keep the eye fixed upon a star bisected by cross wires in the eye-piece, and to correct the motion of the telescope by hand with the slow-motion rods throughout the long exposures. One of these exposures thus made—the longest—was five hours and ten minutes.

I have been able, so far, to make negatives of only three portions of the Milky Way with this lens, as it has not been available since last summer.

The most wonderful of these Milky Way pictures is the one in the constellation of *Sagittarius* (R. A. 17 h. 56 m., December, South 28 deg.), a region which I specially selected as possessing the most intricate and complex structure of any portion of the Milky Way above our horizon. This was given an exposure of three hours and seven minutes.

Upon examining these plates, especially the one in 17 h. 56 m.—28 deg., it will be seen that we have here opened up for us a magnificent field of investigation. It is only necessary to mention the very great differences in the delineation of even the more conspicuous parts of the Milky Way, as shown on different star charts, to see that we have not the means in such charts to make anything like a comprehensive study of the Milky Way. Eyes differ so much, and astronomers, as a rule, are such very poor artists, that we may never expect to get anything like a fair delineation of the Milky Way by the human hand alone ; and if we could, the human eye is too feeble to grasp the more important details, and the largest field of any telescope is too small to trace such large features with any accuracy. Observing and charting the stars does not aid us at all, for the true form of the Milky Way does not depend on stars as bright as the ninth and tenth magnitude, but upon the millions of smaller stars, most of which are beyond the reach of any telescope. The photographic telescopes that are now being made—except, indeed, the Bruce telescope—will give us very little information about the structure of the Milky Way, as the field of view will be too small, and they will not show the cloud forms.

What is wanted, therefore, is a photographic chart of the Milky Way made with a short-focus lens of the largest attainable aperture—one that will cover a field of at least 100 square degrees—with an exposure time that will show the luminosity of the Milky Way. Such a chart can easily be made in one year's time, and must be of inestimable value. I am happy to make the first contribution to such a map.

The large bright spot at the top of the picture is the place of the planet Jupiter. With a proper exposure—say a-quarter second—the planet would have appeared no larger than the largest of the stars on the plate, but as the exposure was three hours seven minutes, the light of Jupiter spread to the extent shown, through the excessive over-exposure.

The reproduction is by Mr. Gutekunst, of Philadelphia, and "is very good," in Prof. Barnard's opinion. It is from a positive so as to show the stars and cloud forms just as they are in the sky, *i. e.*, *white* stars and *white* clouds.

We are sure our readers will be interested in this remarkable astronomical photograph.

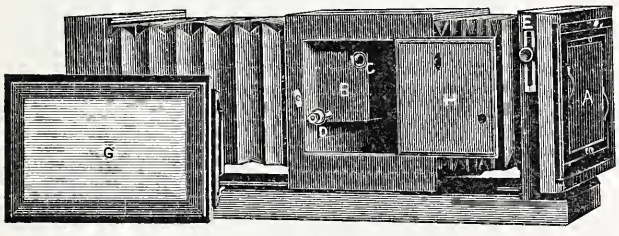
A NEW COPYING CAMERA.

A NEW copying camera for making stereoscopic positives from ⅝ stereoscopic negatives without cutting the negative has recently been manufactured by the Scovill & Adams Co., and is worthy a brief description in these columns.

Midway between the ends of the camera is a frame which divides the body of the camera in two parts. A door at the side (H) gives access to the inside. On a hooded front (B), with a flap shutter, is screwed a pair of 5 or 6 inch lenses. The front carrying the lenses is so arranged that the lenses may, by means of screws (D), be brought nearer to each other or farther apart. If it is intended that

the transparency be a little smaller or larger in scale than the negative, the bellows in front and rear of this frame permits the same to be accomplished.

To practically illustrate. In front of camera (A) button a $\frac{5}{8}$ stereo negative, placing it upside down and film side in. Move the center portion with the lenses back from the negative, so that from the stop of the lens to the negative will be twice the focal length of the lens in use. Clamp this section, and move the ground glass back until the distance from ground glass to stop of lens equals twice the focus of lens in use. Adjust the ground glass until the image on the same is sharp, then tighten all clamp screws.



A, Stereo negative. B, Hooded front, covering lenses. C, Mill-head for raising flap shutter. D, Screw for moving right-hand lens. E, Set screw for vertical sliding front. F, Ground glass. G, Holder. H, Door.

The diaphragm at back of camera gives the size of the two images being $3\frac{1}{4}$ inches high by 3 inches wide. Inside the rear bellows is placed a bellows division separating the light from the two lenses. The sliding front of camera carrying the negative should now be moved up or down in order to fix a base line for the picture, which will be an imaginary line drawn across the negative and passing through two similar objects in the two halves of negative. This settled, then by means of the milled head screw move the right-hand lens so as to bring some object, as a tree, corner of a house or fence, that it may be close to the side of diaphragm; then move the other lens so the same object will be $\frac{1}{8}$ of an inch from the other diaphragm.

These points settled, place a keystone ground glass transparency plate, $3\frac{1}{4}$ x $6\frac{3}{4}$ inches, in the holder, and adjust it to the camera. Place fairly small stops in the lenses; close the flap shutter by means of the milled head (C), draw slide to holder, point camera to the sky; then raise the flap shutter and give one, two or three seconds, according to circumstances. After developing, fixing, washing and drying, the face is covered with a thin piece of glass and the edges bound, when the transparency is ready for the stereoscope.

PRINTING FOR PROFIT.

In these days of cabinets for $2 a dozen—ticket selling and kindred evils—we photographers must make good pictures and also plan our work so as to get the largest quantity of pictures for the least amount of labor if we would succeed financially. There must be order and system in a photo gallery nowadays or there will not be much profit in it.

Let us consider the printing process. You are conducting a general portrait business; you sell a crayon picture occasionally, and perhaps keep frames and derive some profit from the sale of them, and possibly several little side lines, bringing in a dollar once in a while; but the bulk of the income is from photographs; the printing should therefore go on steadily and regularly.

Well, let us see what kind of place you have to work in. We will suppose you have a neat little room or closet to silver paper in. It need not be large even in a considerable establishment. There is a broad shelf along one side of the room of convenient height, and a drawer or two under it for paper and blotters. Place the silvering tray at one end of the shelf over the drawer containing the paper, for instance; then it will be handy. Let the tray be large enough to float a whole sheet of paper—do not for a moment bother with anything smaller even in the smallest portable gallery; it takes just as long to float a fraction of a sheet as a whole one. Reserve a clear clean space on the shelf near the tray for blotters, and beyond that have your drying and fuming box. Use plenty of good clean blotters, and renew when they get saturated.

Sensitizing.—Float a sheet of paper and lay on the shelf, face up; wipe off dirt with clean cotton and lay a blotter on it; now float the next sheet, and while it is on the solution move the blotter around and rub it down to make it absorb well; then lay sheet number two on it and so on until you have a sufficient quantity prepared. In this way you can silver a sheet every two minutes if you float a minute and a half; then turn the pile of paper and blotters over, and hang up the paper first which was silvered first and consequently has been longest between the blotters. Put the sheets in pairs, back to back, and fasten with spring clothes pins. Dry and fume as per directions of the paper manufacturer.

Trimming and Mounting.—In regard to trimming prints, cut all sizes, 8 x 10 and under, before it is printed.

They will not get torn if you handle them as prints ought to be handled, and will save much time blotting and drying prints, and there will be no delay in the finishing, as all can be mounted together. Sizes larger than 8 x 10 it is better to trim after toning and washing, as they are more likely to get torn.

The Printing Room.—Now we come to the print room. It is necessary to have everything arranged with the greatest convenience and order here if you wish to accomplish much. What kind of a printing room have you at the present time? Are you working at a little narrow window put in only to light the room? Or are you trying to print on the north side under your skylight, or using an east window in the morning and running over to the west in the afternoon with all the paraphernalia of printing? Then you are working at a great disadvantage, and if you are not careful your competitors, with nicely arranged rooms, will get ahead of you. Make up your mind *now* to have a good printing room, if it is a possible thing. Go up on your roof and build one; dig through a brick wall for a window; use any honorable means to get it. A broad, low window is needed, and it should be very broad in large establishments, so as to have plenty of room for all the frames you have. Let the window be not less than 4 feet long in the smallest portable gallery where the proprietor is operator, retoucher and printer. It need not be high—18 inches is plenty, except where extra large work is made, and have it the proper height from the floor, so you will neither be obliged to stoop nor reach up. If it be possible, have a direct southern exposure. Fasten a good firm shelf outside the window as wide as you can reach across comfortably, and two or three feet longer than the window; cover with a movable slanting sash, to use in cold or stormy weather, and you are ready for business.

A part of the sash should be glazed with ground glass.

Some printers do not like to print in cloudy weather, but it is then that the finest prints are made, especially from thin negatives. Suppose you run fifty frames on a rainy day; if you only average three prints from each, that makes 150 ten sheets of cabinet size prints; that is quite a respectable batch for an average gallery. It is necessary to get the printing started early in the morning if much is accomplished, as one hour then is worth two in the afternoon. In cool weather always have some paper silvered the night before, as it can be kept several days in a tight tin box; in hot weather it is well to prepare the paper every morning early.

Have plenty of printing frames with tallies on the back, and when you put a negative in a frame let it stay there until the order is printed; it will probably be less expense to make one or two extra prints than to run the risk of being obliged to look up the negative and print more if some get spoiled in the subsequent operations. It takes less time to dust off the negatives before putting on the paper than to spot prints afterward.

A negative directly facing the sun prints much faster than one inclined; quick negatives should be nearest the printer. Put out as many frames as you can run safely and no more. Look each negative over carefully before you print from it and be sure that it is properly retouched and spotted. Don't run any risk of being obliged to make prints over—that takes off the profits.

Toning and Washing—Next come washing and toning; in all washings of prints be sure and keep them separated, as this hastens the process and makes it more certain; save all solutions containing silver or gold, wash water, toning baths, etc. Use gold enough to tone steadily and surely; use salt after fixing and in several changes of water, then you will not be troubled with blisters and mealiness. Most large blisters occur where the print is broken or crumpled—the remedy is obvious.

There is a wide difference of opinion as to the length of time required for the final washing of prints; warm water hastens it and may be used almost hot without injury to the prints. I am inclined to think that the washing can be thoroughly done in two or three hours by changing the prints, one at a time, from one tray to another, every fifteen or twenty minutes; it certainly leaves the prints in better condition than soaking over night. If you must wash them over night, mount in the morning; do not leave them in the water longer than is necessary.

The better way, however, is to tone directly after noon and mount the last thing at night, between five and six, as all hands can usually take hold and help then. *Do not* set aside your regular order of work except for urgent reasons.

Mounting.—In cloudy, dark weather the prints need not be toned every day if but few have been printed, but should not be left more than two days. When the prints are washed, pick them up directly from the water on a glass—first covered with clean white paper—with upper edge of prints all one way, then they will come handier in mounting; let them drain a few minutes and they are ready to paste,

for this purpose there is nothing better than starch made up fresh every day; make it as thick as will spread readily, then it will not squeeze out from under the print and daub the face of the mount. When laying on the print hold it between the tips of the thumbs and fingers, and be sure and reach in a little way from the edge, because if you touch the edge you are likely to rub off the paste and cause it to start from the mount. You can mount thousands of prints and not have one of them peel, if you do it right, and not be slow about it either. Remember that it takes much longer to stick down the edges of a print that has peeled than to mount it properly. To rub down lay the print on a flat smooth surface; put a clean blotter, somewhat larger than the print, on it; hold one end firmly down on the table to prevent slipping, and run a roller firmly but lightly over it once or twice. If you have done it properly the print is in perfect contact, but you should glance over the surface as you pick it up, to make sure. If you use cards with unenameled backs, pack them together as fast as mounted, then stand on end in mount boxes with damp blotter over them till ready to burnish. Enameled back cards must be placed between clean blotters, and may be left until ready to burnish.

Burnishing requires a considerable "knack" and is sometimes troblesome, but most of the difficulties can be easily overcome if you know how. First, the heat must be nicely adjusted to the moisture of the prints; the dryer the print the hotter it may be, but not enough to blister the prints. Experience alone will teach this. It is the heat and pressure that make the burnish, not friction over the burnishing tool. Run prints through slowly; if one sticks and makes a line across it don't say bad words and throw it away; just keep cool, wet up the surface thoroughly, and when dry enough run through again, and see if you can find the place where it stopped. Most scratches on the surface of prints are caused by dirt.

There is a little scheme for burnishing quickly without hurrying. For instance you have a burnisher with 10-inch roll or longer. Well, a cabinet print is a little over 4 inches wide, and if you use plain black cards and, possibly, enameled backs, you can run through two at the same time.

Have a little inclined shute or trough to catch the prints as they come through the burnisher, with a box at the lower end. Start a print at one end and, turning steadily, put in another print at the other end, then keep "feeding" in and thus keep two streams of pictures constantly running through. You cannot start two at the same time with one hand, thus they will "break joints" and run through steadily. When the batch has been run through repeat the operation as before until the requisite polish is obtained. If you have never tried this you will be surprised to see how quickly you can burnish.

In conclusion I would suggest that it takes less time to do any and every part of the work thoroughly and well than to run any considerable risk of having to do it over or patch up afterward. If you see some photographer working in a different way from yours, consider if it be a better way, and if so adopt it. Don't get into ruts. Charge a fair price for your work and make your work worth the price you charge.

E. B. Luce.

HOW SPENDER PHOTOGRAPHED HIS LONG BUILDING WITH A SMALL CAMERA.

Charles J. Spender, junior partner of the firm of Moneymaker & Spender, manufacturers of wire goods, had bought a camera. Several of his friends had been amateur photographers for quite a while, and their enthusiasm over their work had at last inspired him to invest in a camera and join their local photographic society.

Like a wise and prudent business man, he had decided not to go in too deeply at first, but had contented himself with a cheap but serviceable 5 x 8 Waterbury outfit, with the intention, of course, of getting something more elaborate later on. By following the advice of the older members of the club he soon became quite expert in filling holders, focusing, exposing, developing, and all the other manipulations of the amateur art photographic, in proof of which he was soon able to exhibit a number of fairly good pictures on his parlor table, all taken by himself. But his ambition would not be satisfied till he would be able to exhibit to the admiring gaze of his partner, Mr. Moneymaker, a perfect view of their extensive manufactory of wire goods, etc. At the heading of every letter that our amateur friend wrote there was printed a picture of these same extensive works, which he had always regarded with great satisfaction; it was a bird's-eye view and showed the front and one end of the main building, and all the minor buildings in proper position in the rear. True, the main building had eighteen more windows than were really there, and all of the smaller buildings had assumed a size that would

have rendered them unrecognizable if it had not been for the fact that the name of each one had been put on the roof; but all this he regarded as a sort of "poetic license" on the part of the engraver, more worthy of commendation than censure, and resolved that his photograph of the establishment should be as near like that one as possible. The point of view from which such a picture must be taken must evidently be of great elevation, and where to obtain such a point was the first question. The nearest church spire was three blocks away, and there was no other building sufficiently high in the neighborhood. He next bethought himself of the "rocket cameras," of which he had read, but a glance convinced him that the "Waterbury" was not built for that kind of work, so after trying in vain to devise some way by which it could be done, he was compelled to give up his aerial aspirations and content himself with views from terra firma. But here another difficulty presented itself; although back as far as he could get his narrow-angled lens, was unable to show the whole length of the wire goods factory on the plate at once; when the office end was shown on the ground glass the engine house and the $5,000 smoke-stack were not in; and when he rotated the camera so as to give the smoke-stack a show the office end passed beyond the desired limits. As he was struggling with this new problem his photographic friend, Bobby Blank, came sauntering up. "Hello, Spender, what is the matter now?" he asked. The difficulty was explained. "Oh! that is easy enough," said Bobby. "You just make one view pointing your camera this way, then swing it around and take the other end; and then mount the prints so as to join perfectly and the thing is done." Bobby's advice was taken and all seemed to go well until the prints were mounted, and then it became apparent that there was something radically wrong in that way of working. At the point of juncture the two sections of the roof came together in a point, sloping away in independent perspective toward the ends, while objects in the foreground, although they had appeared in both prints, had to be cut out altogether in order to make the building connect at the proper place. That evening Spender showed the picture to the president of the club. "You have made a mistake, my friend," said that dignitary, "in rotating your camera on the tripod head. If you would have moved it around an imaginary point corresponding with the optical center of your objective, it would have been all right." The new theory was put into practice the next day, but when the resulting prints were mounted it was found that although the foreground had everything in that it should have, the roof sloped both ways as badly as before.

Convinced that there must be some way of overcoming the difficulty he called upon a learned friend in a neighboring college. "I see your difficulty at once," said that gentleman, "and your only plan will be to draw a line on the ground parallel with your building, and beginning at one end, with your camera set firmly at right angles with the line, make a number of exposures at equal distances along the line till you reach the other end, then cut a small section from the center of each print and you will be able to unite them into a picture in which the line of the roof will be perfectly straight." But alas! when the elaborate theory was carried out, and the half-dozen sections were cut and mounted together, it was found that although the roof was now tolerably straight, the foreground was cut up so badly as to render the whole thing more of a failure than either of the former attempts. Not discouraged by his successive failures, he set his wits to work to devise some way by which it could be done. A professional friend suggested that he use a lens of a wider angle, but he had undertaken to do the job with his own modest outfit, and he was sure that there must be some way by which it could be done. By his first failures he had learned that any change in the angle of view between the two exposures would be fatal to success, and by his last that any change in the point of view would give equally unsatisfactory results. So after much thinking he hit upon the following plan, and proceeded to carry it out.

He set his camera firmly on the ground, pointing it directly at the middle of the building, and then moved the sliding front till the lens was at the extreme right side of the box. This brought the office end within the desired limits, and an exposure was made. He then shifted his lens to the left side, and moved the whole box a sufficient distance to the right to bring the lens to exactly the same point, with relation to the view, that it had occupied for the first exposure. The engine-house was now all on the plate and the second exposure was made. Although the prints were a little fuzzy at the ends that were very near the edge of the circle of illumination, still they registered perfectly, and Spender was happy. By a kind of artistic license, akin to that used by the engraver when he introduced the eighteen extra windows, he had posed the driver Jerry, with his horse and dray, at the office end for the first exposure, and then had him drive the team to the other end when the second half was taken, which little trick was calcu-

lated to make it appear that Moneymaker & Spender owned and used in their business two drays with their name painted on the sides instead of one.

The boys at the club praised the result, and the dignified senior partner pronounced it a grand success, declaring that there must be an elaborate chromo-lithograph made from it at once, to be used in advertising their business.

Of course, Spender could have accomplished the same result by using a larger-sized camera, so that the whole width of the illuminated circle would have been taken at one exposure; but he started out to do it with the apparatus at hand, and this hint as to how he did it may be of use to some one who desires to do a similar piece of work.

J. Will Barbour.

PHOTOGRAPHY IN THE COLORS OF NATURE.

(*Continued from page* 81.)

THE process by which such imperfect results have been obtained is too slow to be applied successfully to camera photography, and the results are not permanent.

In view of all these facts, it would appear that there is no scientific basis for a belief that any material improvement can ever be made in this process, and that all so-called progress along this line is a delusion. It is true that some distinguished photographic writers continue to regard every new modification of this old process and every new result of experiment with it as another step toward the photographic reproduction of the natural colors; but I have no doubt that if the same writers had lived two hundred years ago, they would have regarded the production of new yellow-colored metal alloys as steps toward the transmutation of the baser metals into gold.

In my opinion, the first step toward the solution of this problem was taken by Henry Collen, Queen Victoria's painting-master, who, in 1865, invented a plan of composite heliochromy. His plan was based upon a false conception of the nature of color, and means for carrying it out were then unknown; but it was a bright idea, and contained the germ of a successful process. Collen's original communication of his idea appeared in the *British Journal of Photography*, October 27, 1865, and reads as follows:

"It occurred to me this morning that if substances were discovered sensitive only to the primary colors—that is, one substance to each color—it would be possible to obtain photographs with the tints as in nature by some such means as the following:

"Obtain a negative sensitive to the blue rays only; obtain a second negative sensitive to the red rays only, and a third sensitive to the yellow rays only.

"There will thus have been three plates obtained for printing in colors, and each plate having extracted all its own peculiar color from every part of the subject in which it has been combined with the other two colors, and being in a certain degree analogous to the tones used in chromo-lithography. Now, it is evident that if a surface be prepared for a positive picture, sensitive to yellow rays only, and that the two negatives, sensitive only to blue and red, be superimposed either on the other, and be laid on this surface, the action of light will be to give all the yellow existing in the subject, and if this process be repeated on other surfaces sensitive only to red or blue respectively, there will have been produced three pictures of a colored object, each of which contains a primitive color reflected from that object.

"Now, supposing the first great object achieved, viz., the discovery of substances or preparations, each having sensitiveness to each of the primary colors only, it will not be difficult to imagine that the negatives being received on the surface of a material quite transparent and extremely thin, and that being so obtained are used as above—*i. e.*, each pair of superimposed negatives to obtain the color of the third—that three positives will be obtained, each representing a considerable portion of the form of the object, but only one primary of the decomposed color of it. Now, if these three positives be received on the same kind of material as that used for the negatives, and be then laid the one on the other, with true coincidence as to the form, and all laid upon a white surface, it will not be difficult to imagine that the effect would be, not only the representation of the form of the object, but that of its color also, in all its compounds.

* * * * * *

"Although the idea I have endeavored to express in words may be utterly worthless, I am unwilling to let it slip away without notice, as it may, on the other hand, contain a germ which may grow and bear fruit in due season."

The language in some parts of this communication is ambiguous; but, taken altogether, with due allowance for the writer's unfamiliarity with photographic technology, it clearly amounts to a suggestion to make three photographic negatives of an

object—one by the action of red light, one by yellow, one by blue; to print from each pair of these negatives (superposed as one) a transparent positive having the color represented by the third negative, and to superpose on a white surface the three prints thus obtained.

It was not possible to carry out Collen's suggestion at that time, because there was no known process by which plates could be prepared which were sensitive to single colors only, and no photographic plates were sensitive enough to red and yellow to admit of the production of such negatives by exposure through selective color screens. Had it been possible to carry it out, the results must have been very imperfect, not only because the entire procedure is based upon a false and misleading theory of color, but also because superposing two negatives to act as one would double the intensity of such parts as represented white, gray, or pale-colored objects, with the result that if the color prints were made to show all the details of the negatives, the finished heliochromes would show all bright colors as if mixed with equal parts of black pigment.

On November, 23, 1868, Ducos Duhauron, of Paris, applied for a patent* for a process which differed from Collen's only in the manner of carrying out the same idea. Like Collen, he assumed that the spectrum is made up of three primary color rays and mixtures thereof. He said: "My procedure rests on the principle that the simple colors are limited to three—the red, the yellow and the blue—the combination of which in divers proportions produces the infinite variety of shades in nature." Like Collen, he expected to solve the problem by superposing red, yellow and blue prints taken from negatives made by yellow and blue, red and blue, and yellow and red light. But, instead of using plates sensitive to single colors only, he proposed to use plates sensitive to all colors, and to prevent the action of color rays not wanted by filtering them out with color screens placed in front of the photographic objective or sensitive plate; and, instead of superposing two negatives to act as one, from which to make the color prints, he proposed to make two colors (two-thirds of the spectrum rays) act to produce each negative, which amounts to the same thing, and would not obviate the defect I have mentioned as resulting from the doubling of intensity on uncolored objects. He proposed to make one negative through an "orange" screen, calculated to absorb the blue light and transmit the red and yellow; one through a "violet" screen, calculated to absorb the yellow light, and transmit the blue and red; one through a "green" screen, calculated to absorb the red light and transmit the yellow and blue.

It was no more possible to carry out this idea in Duhauron's way in 1868 than to carry it out in Collen's way in 1865. It is true Duhauron tried to carry it out, and showed specimens of work, but the red and yellow rays did not act on his sensitive plates,* and he admitted, in a communication to the French Photographic Society,† that "the production of good results will * * * involve the manufacture of compounds which have not yet been created."

Soon after Duhauron showed his first specimens, Charles Cros, of Paris, published another modification of Collen's plan.‡ Like Collen, Cros proposed to make one negative by the action of red light, one by yellow, and one by blue, but by exposing the sensitive plates through red, yellow and blue screens, instead of employing plates sensitive to single colors only. Instead of superposing each pair of these negatives to make each color print, he proposed to make a green print from the negative made by red light, a violet print from the negative made by yellow light, and an orange print from the negative made by blue light. He also suggested that ordinary positive prints made from these negatives might be illuminated each by the kind of light which it represented, and the three combined by the aid of suitable optical devices so as to form a single picture, showing all the colors. Cros's plan, although it could not succeed, because based upon the same false and misleading theory as that accepted by Collen and Duhauron, nevertheless possessed one important advantage over the preceding methods: it was free from the defect of doubling intensity on those parts of the negatives representing pale or uncolored objects. But this advantage would be lost again, in the production of green, violet and orange-colored prints, which will combine to reproduce yellows and blues only with a degree of degradation comparable to that produced by Duhauron's method.

On December 3, 1869, M. Poirée, of Paris, in a communication to the Photographic Society of France,‖ expressed doubts concerning the correctness of Duhauron's and Cros's theories, and suggested that better results might be had by making

* Class xvii., Sec. 3, Serial No. 83,061.

* Yellow pigments were photographed by the green rays which they reflected.

† *Photo. News*, 1869, p. 319.

‡ Described in *Photographic News*, October 8, 1869, p. 483.

‖ *British Journal of Photography*, 1870, p. 26.

a greater number of negatives—a separate negative for each spectrum region. He said: "The process which seems likely to succeed best is that in which the colors are analyzed by isolating successively each ray, or at least the rays of the same shade. * * * This analysis is difficult to make with colored glasses; it might be done, as by Newton, by monochromatic lighting and successive exposures to simple rays of the same shade. * * * The synthesis is made by means of black positive images and rays of the same nature as those which produced the corresponding negatives. * * * It will then only be necessary to place one above another the colored images so obtained, so as to form one virtually and really. It will be identical with the model, because it will be formed by the same rays, in the same relation of intensity." This plan also could not then be carried out, because no photographic sensitive plates were sufficiently sensitive to yellow, orange and red spectrum rays.

In 1873, Dr. H. W. Vogel discovered that bromide of silver can be made sensitive to the less refrangible spectrum rays by treatment with certain dyes, and the subsequent discovery of other and better color sensitizers supplied the means for carrying out either Collen's or Poirée's idea.

Duhauron, one of the first to avail himself of these discoveries, made some practical progress, and, in 1876, abandoned Brewster's color theory and patented a modified process,* based upon the observation that, while there appeared to be *seven* "principal" spectrum colors, three coloring substances would "serve to express them." The coloring substances he named for this purpose are blue, carmine and yellow, and he decided that, in order to make such a process reproduce the colors of nature, the negatives should be made by the action of orange, green and violet spectrum rays, which are complimentary to the coloring substances. Some persons have thought that he had the idea of making negatives to represent primary color sensations; but this supposition is negatived, not only by the absence of any declaration to that effect, but also by the fact that orange does not represent a primary color sensation, either in fact or according to any theory recorded in the text-books, and the violet rays are not the ones which most powerfully excite the blue (violet) sensation. The plan was also utterly indefinite as regards the relative effect of intermediate spectrum rays, and Duhauron himself, owing to the fact that he never tried the method upon the spectrum, had no accurate knowledge of its capabilities. In his latest and "perfected" process (1878),* he employed no plate sensitive to either red or orange light; one negative was made chiefly by yellow light, another by green, and the third chiefly by violet and invisible ultra-violet rays.

Albert, of Munich, also took advantage of the discovery of color sensitizers to try to carry out Collen's principle according to Duhauron's original plan. He was the first to make the color prints by the collotype process, which led to the use of the term "chromo-collotype."

In 1879, Cros† abandoned the idea that red, yellow and blue are primary spectrum colors, but still held that there are three primary colors and mixtures thereof, and that these primary colors are orange, green and violet. Like Duhauron, he decided to make negatives by light of these colors and prints in blue, red and yellow.

In 188–, Dr. F. Stolze, of Berlin, made a series of investigations, and tried to solve the problem by devising a procedure more in accordance with Young's theory of color.‡ He said: "Although the colors correspond with certain external processes in nature, there is also no doubt that color as such is nothing objective, but a subjective sensation, based upon the peculiar irritation of the visual nerves by those external proceedings.

F. E. Ives.

(*To be continued.*)

* British patent, July 22, 1876, No. 2,973.

* "Traité Pratique de Photographie des Couleurs," Paris, 1878. *Photo. News*, 1878, p. 115.

† *Bulletin of the French Photographic Society*, 1879, p. 23

‡ *Anthony's Photographic Bulletin*, 1888, pp. 516, 555, 588, 647, 678.

AN AMATEUR'S EXPERIENCE WITH "OLD DEVELOPER."

Not long ago, in glancing over a photographic paper, my eye happened to fall on a repetition of that old, old recommendation which is always "bobbing up serenely:" "save your old developers and start very sensitive plates with it."

Why people should do this I cannot see, but, of course, we must always remember that there are "many men of different minds," and that nearly every one—certainly every photographer of any account, has little individual peculiarities in his ways of working.

However, it seems to me that I gained some dearly bought experience in trying that little economical dodge. Years ago, when ferrous oxalate was all the rage, I tried the patent bottles with paraffine oil on top. Then I tried economy in various pyro mixtures, home-made and patent developers. Lastly, I have tried it with hydrochinon.

Now, in few of these attempts was I absolutely unsuccessful, but in time I found it always was slower work and gave more unsatisfactory results than if I had used fresh developer properly modified. Even when a much over-exposed plate wanted a weak, strongly restrained developer, I found it was much more satisfactory and economical in the end to use a fresh, modified solution than if I had attempted to work with old developer, weak, indeed, and with plenty of bromine (in some form or other), but also charged with more or less useless salts and oxidized matter.

The results were always more uncertain and the images developed this way weaker and more smudgy; they always seemed to lack clearness and snap. This occurred not only with over-exposed plates, but with others subjected to the action of old developers, and it was always relative; in other words, of two plates with perfectly equal exposure, the one which had not been touched by "old developer" was the better.

These experiences apply both to the times when I worked with slow plates and now, when I use only the fastest plates, and expose on most views and houses with a shutter.

I have done for ever with what I consider the "penny wise, pound foolish" method of using old developers for any purpose but to pour down the waste-pipe.

I work with "so many" grains of this and that, having solutions of known proportions; use weak developers, and do not use them over many times. If I have to doctor a plate any, I will not start again with that solution, or even part of it mixed over, but stand it aside in case the next plate or so needs it; when done for that time I pour *all* mixed solutions into the sink.

Anybody but the merest *tyro* ought to be able to start even the most sensitive plates with normal developer (normal for them), and give them *fresh* solution; it is as healthy for a plate as fresh air for a growing child. If you want either bright and beautiful you must give it them.

Frank Daral.

ONE HUNDRED DOLLARS IN GOLD TO BE PAID IN PRIZES FOR PHOTOGRAPHS OF BAD ROADS.

TO STIMULATE the collection of photographs to be used in showing the need of improved roads in the United States, the Connecticut Division joins the New York Division in offering three prizes aggregating to $100 in gold as follows:

1. One prize of $50 (gold) for the best collection of not less than three photographs.

2. One prize of $30 (gold) for the second best collection of not less than three photographs.

3. One prize of $20 (gold) for the third best collection of not less than three photographs.

This offer is made subject to the following conditions and suggestions which should be observed:

All photographs must be accompanied by the negatives, unless the latter have been destroyed.

Competition will close on the first day of May, 1891, and all photographs must be submitted on or before that date.

Photographs must be confined to such subjects as most strongly illustrate the unfitness of the present public roads (especially the common "dirt" roads) used as public highways.

To aid you by a suggestion we will say we want:

Photographs showing the common spectacle of the farmer's team and wagon, hub-deep and knee-deep in the muddy road.

Photographs showing rough, rutty and muddy roads in their worst condition.

"Stuck in the mud" photographs, showing the farmer or merchant with his loaded wagon vainly trying to drive his patient team and load out of the inevitable mud hole.

Photographs showing the everyday breakdown caused by rough or muddy roads or steep grades.

Photographs showing smooth, hard-surfaced roads, and (if possible) teams hauling loads over the same.

And other pictures illustrating the goodness of good roads and the badness of bad roads. Your opportunities and observation will suggest the proper thing in this line.

Each photograph must be accompanied by a full statement of particulars, giving date, location, etc., by which the picture may be identified. Blanks for this purpose will be supplied on application.

All photographs and negatives submitted must be sent marked with a fictitious name pseudonym, by which the competitor is to be known until the date of award. Each competitor must also send a sealed envelope containing his or her real name and address, and marked upon the outside with the fictitious name of the competitor.

All photographs and negatives submitted in this competition are to remain the permanent joint property of the New York and Connecticut Divisions of the League of American Wheelmen. At least ten persons must compete in order to insure the reward here offered.

In deciding upon the respective merits of the work submitted, the following points will be considered:

1. The subject of the photograph and its force in illustrating the necessity for better roads.

2. Clearness and general excellence of photographic work.

3. Location (giving preference to those views which show bad roads in important counties, suburbs of large towns, etc.)

4. Size of photograph. The question of size will be considered least and last of all. Any competitor may send more than three photographs if desired. The committee will select the *three best* of those submitted by each competitor.

The prizes will be awarded before May 15, 1891, by a committee to be selected by the Chief Consuls of State Divisions of New York and Connecticut. All communications will be in every respect confidentially treated, and

further information will be furnished on application to either of the undersigned, to whom all photographs and negatives should be sent.

Isaac B. Potter,

Chairman Roads Improvement Company, New York State Division, League of American Wheelmen, 278 Potter Building, New York, N. Y.

Charles L. Burdett,

Chairman Roads Improvement Company, Connecticut State Division, League of American Wheelmen, Hartford, Conn.

Notes and News.

The Lynn Camera Club will hold its second competitive exhibition about March 17th.

An Australian photographer is reported to get excellent pictures of objects at a distance of sixteen miles.

Now that Madame Bernhardt's avoirdupois has increased, we may soon expect to see her photograph on some patent medicine or beef extract label, says a daily newspaper.

A New York photographer has sold more than 1,000 photographs of Lillian Russell as she is seen in "Poor Jonathan," and nearly 500 of Ada Rehan in "The Last Word."

C. A. Chandler, formerly photographic editor of *The Boston Globe*, has been appointed private secretary to the managing editor, A. A. Fowle.

Frank Thomas, the enterprising photographer of Columbia, Miss., writes, in reference to THE PHOTOGRAPHIC TIMES, "I have taken it from the first, and do not like to stop now."

S. R. Stoddard gave his illustrated lecture entitled "A Canoe Trip to the Bay of Fundy," before the Lyceum at Glens Falls, N. Y., Tuesday evening, Feb. 10th. Mr. Stoddard's artistic skill was ably illustrated by the many fine views exhibited, and his words were well calculated to interest and instruct.

Syracuse Camera Club.—At the meeting of the Syracuse Camera Club, Friday evening, February 6th, the illustrated lecture entitled "Glimpses of California," made by the Pacific Camera Club, was the entertainment of the evening. Friday evening, February 13th, Prof. Newbury, of Cornell, addressed the club on the subject of "Hand Cameras," showing some slides to illustrate his remarks.

A Photographer's Outfit Explodes.—ALBUQUERQUE, N. M., Feb. 10.—A small trunk containing a photographer's outfit exploded yesterday morning while being transferred from the eastern train to the El Paso train. Richard Gentsey had hold of the trunk at the time, and was badly cut over the body, face and head. Fred Hand and George Miller were badly hurt. The car was blown into kindling wood.

Plumb's Portrait.—A picture of Senator Plumb, taken while he was in the act of addressing the Senate, is not very flattering to the Kansas orator. His necktie was awry, his fluted shirt was rumpled, and his clothes hung loosely about his big frame. In the heat of his oratory he plunges one hand and then the other into his pockets, shakes his clinched fists at his foes, and once in a while hits the stack of books he has piled upon his desk and knocks it to the floor.—*From a Washington letter.*

Horgan, Robey & Co., successors to C. H. Codman & Co., so long and favorably known as leading photographic merchants in New England, report a flourishing condition of affairs. With increased facilities the new company are in a position not only to better accommodate their old patrons, but to execute promptly all orders received from many new customers.

The T. H. Lieber Co., of Indianapolis, Ind., has consolidated with the Indianapolis Molding and Picture Frame Co. By this consolidation the new company claim to be in a condition not only to serve old customers with former promptness, but by increased facilities can undertake and execute a much larger business than ever before fell to their lot.

Photographic Societies.

SNAP-SHOT CAMERA CLUB.

A NUMBER of enthusiastic amateur photographers, ranging in age from twelve to sixteen years, met at the residence of A. Klauber, at 1324 Sutter Street, San Francisco, on Friday evening, January 31st, to form a Camera Club. Secretary to the California Club, presided and guided the T. P. Andrews, young photographers through the meshes of parliamentary law. A constitution and by-laws were adopted, and the following officers were elected: President, Horace Morsan; Vice-President, Paul Weil; Secretary, Hugo Klauber; Treasurer, J. Baird. The club will meet on the first and third Fridays of each month, and the young men hope in a short time to be able to establish club rooms. The name of the club decided upon was "The Snap-Shot Camera Club."

The Editorial Table.

Only a Few Left.—The supply of British Annuals for 1891 is nearly exhausted, so that those who have not obtained a copy of each, the "British Journal Almanac" and the "Photo. News Year Book," should do so at once. They are fully equal to their predecessors in interest and value, and every photographer should have them as well as the American annuals.

A Beautiful Celluloid Calendar for 1891, engraved by the Baldwin & Gleason Co. of New York, comes to us from the Textile Mfg. Co.

From Phelps, of Clinton, Mass., we have received an excellent cabinet photograph, showing skillful grouping. The negative and print are also well made, and bespeak the experienced photographer.

"**I highly esteem it,** and have recommended it to others, who have subscribed for it."—E. COPE, Hamilton, Ohio.

From C. V. Ferson, of Mechanicsburg, Ohio, we received an excellent 8 x 10 photograph of an interesting subject. It is a huge canoe, mounted on wheels, and filled with a group of young ladies, who called themselves "Daughters of Harrison," and whose political enthusiasm led them to take part in the various Republican parades in their neighborhood during the presidential campaign of 1888.

"As Usual."—The frontispiece of THE PHOTOGRAPHIC TIMES of last week is an exquisitely finished portrait study by C. F. Conly, a Boston photographer. It will be appreciated by professional and amateur photographers for its suggestions and artistic excellence. THE TIMES, *as usual*, contains much information of interest to all who indulge in photography for business or pleasure. — *Rochester Herald.*

Two New Books.—In the advertisement of Houghton, Mifflin & Co., on another page, we would call attention especially to two of the books they mention:

"The Life of Dorothea Lynde Dix," by Francis Tiffany, is a notable biography. It is the only attempt which has been made to prepare an adequate biography of this famous woman. Except for a few brief accounts of her career, printed in magazines, read before clubs, or inserted in encyclopedias, no information is to be had about her; yet here is a woman who, as the founder of vast and enduring institutions of mercy in America and in Europe, has simply no peer in the annals of Protestantism. This life of Miss Dix is, in every way, satisfactory, and is a book which all who are at all interested in biography will greatly enjoy and appreciate. It has already passed through four editions.

We are glad that the first and second series of Lowell's "Biglow Papers" have been issued in one volume. This is a complete revised edition, printed on good paper, in liberal type, and, though the two series are in one volume, do not make an inconveniently sized book. It is a volume that would be much appreciated in a photographer's waiting room—or anywhere else.

Record of Photographic Patents.

446,368. Photographic Camera. Charles Whitney, Chicago, Ill.

446,369. Photographic Camera. Charles Whitney, Chicago, Ill.

446,370. Photographic Holder. Charles Whitney, Chicago, Ill.

446,371. Photographic Plate-Holder. Charles Whitney, Chicago, Ill.

446,372. Photographic Camera. Charles Whitney, Chicago, Ill.

446,373. Supply Case for Roll-Holders in Photographic Cameras. Charles Whitney, Chicago, Ill.

446,374. Photographic Camera. Charles Whitney, Chicago, Ill.

"Beautiful Work."—"You are doing beautiful work in THE PHOTOGRAPHIC TIMES in the way of illustration."

PROF. S. W. BURNHAM,
Lick Observatory, Mount Hamilton, Cal.

Queries and Answers.

28 W. H. THOMPSON wants to know if there is "any way of ascertaining whether any hypo is left after washing on plates or prints?

28 In reply we will inform our friend that the iodide of starch test is reliable enough for all practical purposes. An iodide of starch paper is prepared by the Scovill & Adams Co., which, when brought into contact with the drippings from plate or print will become bleached if there is any hypo present. Another test is to allow the drippings from plate or print to fall into a diluted solution of nitrate of mercury. If the color changes to a dark yellow or brown, the presence of hypo is indicated.

29 AMATEUR.—Which is better for reproducing line engraving, a highly sensitive plate, or one of moderate rapidity? I want to make clear black and white negatives printable on bromide or platinum paper.

29 *Answer.*—Mr. Carbutt prepares a plate especially for this purpose. It is of sensitometer Nos. 12 to 14, less sensitive than his celebrated B plate. With correct exposure and S. P. C. hydrochinon developer, preferably old solution, the desired opacity and transparency is not at all difficult to obtain. Highly sensitive plates are apt to be over-exposed with that class of work.

30 ANGE PITOU.—How can warm tones be obtained on gelatino-chloride emulsion plates?

30 *Answer.*—Mr. J. Werge states that stale ferrous oxalate has frequently produced a brilliant red color, but a more certain method is to expose for from four to five times longer than is requisite for neutral black tones and develop with the ordinary hydrochinon solution, reduced in strength to from four to five times.

31 WINDSOR.—Can you give a short description of how the beautiful ivorytypes were made?

31 *Answer.*—The ivorytype is a water-colored photograph on plain paper cemented with a translucent medium on glass after painting. These pictures are not mere daubs, the color being applied on the back of the photograph, but really the work of an artist. A more than usual dark print is stretched on glass or a drawing-board and very highly colored with transparent paint, laid on much thicker than on an ordinary aquarell. Body color will not do. Coloring being finished, the picture is laid upon a heated plate-glass and cemented on by a mixture of white wax, damar and Canada balsam. After all superfluous cement has been removed, another, a mounted photograph, is laid under, but not in direct juxtaposition, a space of one-sixteenth of an inch being allowed. On this second picture corrections are made, and being visible through the translucent first picture, coloring is beautifully blended, and the plasticity of the picture is produced for which ivorytypes were so justly admired.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

W I. LINCOLN ADAMS, Editor.

Issued every Friday.
Monthly (unillustrated) edition issued on the last Friday of the month.

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Weekly (illustrated) edition, for one year $5 00
" " " " six months 2 50
" " " one month's trial 50
Monthly (unillustrated) edition, for one year 3 00

Single copy, Weekly, 15 cents; Monthly, 25 cents.
The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.
On Foreign Subscriptions $1 00 is added to pay postage.
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WITH THE BEGINNING OF THE NEW YEAR many photographers contemplate subscribing to a photographic magazine, and sometimes are in doubt as to which one they will choose.

TO SUCH we offer to send THE PHOTOGRAPHIC TIMES for three months, for one dollar, in order that they may thus have an opportunity of judging of its value.

WE CLAIM to be the representative organ of the photographic fraternity in this country, as well as a progressive magazine for amateur photographers.

WE WANT every photographer in this country to receive THE PHOTOGRAPHIC TIMES, and therefore make this special offer to those who as yet are unfamiliar with it.

IN ADDITION to the three months' trial subscription for one dollar, we will send the special HOLIDAY NUMBER and the succeeding issue in December if the subscription is sent in previous to December 19th.

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All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

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When buying photographic cameras, be sure, if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

A LETTER WHICH TELLS ITS OWN STORY.

CATHOLIC UNIVERSITY OF AMERICA,
WASHINGTON, D. C., January 30, 1891.

MR. JOHN CARBUTT.

Dear Sir: About two months ago my confrere, Professor G. M. Searle and myself ordered a gross of "A" plates and "Lantern Slide" plates for use in illustration of a course of scientific lectures. Allow us to express our satisfaction with the results attained. We had the most gratifying success in every instance. We do not think that *plates can be made* more perfectly adapted to such use.

Yours sincrely,

(Signed) CLARENCE E. WOODMAN, Ph.D.

Studio Changes.

Strathroy, Ontario. S, H. Ray's gallery was burned.

Montgomery, Ala. Mr. J. W. Blythe succeeds S. P. Tressler.

Montgomery, Minn. Early on the morning of February 1st fire broke out in A. M. Johnston's photograph gallery, and in a short time the studio was completely destroyed, involving a loss of some $300.

Detroit, Mich. C. A. Millard is dead.

Warren, Pa. W. A. Bairstow has removed from that city.

Business Notices.

IN his new San Francisco store at 226 Bush Street, Partridge has provided special accommodations for developement of plates, which are at the disposal of the public.

SIX OF ADT'S large improved Metallic Retouching Pencils for $1. Ask your dealer for them, or send direct to Adt & Brother, Waterbury, Conn.

PHOTOGRAPHIC BROKERAGE.—C. M. Brockway would inform all wanting selected photo. goods that he will continue to give his best attention to all orders mailed to his new address—No. 33 Worth Street New York City.

FOR SALE, AT A BARGAIN, TO CLOSE THE ESTATE—The gallery at 76 Main Street, Lockport, N. Y., so long and successfully operated by the late G. M. Smith. Apply to
H. C. Hill, M.D., Administrator, Lockport, N. Y.

FOR SALE—One Woodward Improved Solar Camera for direct printing—15-inch condenser, printing 29 x 36—in good condition. Price, $125 boxed. Address
WOODARD, CLARKE & CO., Portland, Ore.

FOR SALE—No. 1 Kodak, in perfect condition, $15.
W. M. V., 370 Centre Street, Orange, N. J.

FOR RENT.—One of the finest and best equipped Photograph Galleries in the city of Baltimore, situated on one of the principal thoroughfares. Everything complete for immediate use. This is a chance rarely met with. Terms moderate. Address W. C. RUSSELL, Photographic Supplies, 5 N. Charles Street, Baltimore, Md.

SEND 25c. for samples of Sensitized Albumen Paper and Blue Process Paper, to THE PHOTO PRINTING & MFG. CO., 59 Beekman Street, New York City.

$25 REWARD for a 4-4 Voigtlander Lens (portrait), rack and pinion, No. 13972. Stolen from gallery.
PATTERSON BROS., Pratt, Kansas.

PHOTOGRAPHERS, ATTENTION.—FOR SALE.—The finest Photograph Gallery in the South, situated at Baltimore, Md. It has cost ever $15,000 to fit up same, but will be sold very cheap, and on easy terms. For particulars, address CODY & CO., 755 DeKalb Avenue, Brooklyn, N. Y.

FOR SALE, at a bargain, the following entirely new goods: One No. 1 Eastman Easel, price $7.50, will sell for $5.00; One No. 2 Voightlander Lens, Series 4, price $74.00, will sell for $60.00; One 8-inch Wale Lens, price $33.00, will sell for $20.00. Address
CASH, Care THE PHOTO TIMES.

PHOTOGRAPH GALLERY FOR SALE—As I have two very good offers in other directions, I will sell my gallery very cheap if taken before long. A good opening.
W. A. KINDT, Stroudsburg, Pa.

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OFFICE OF THE FELLOWS PHOTOGRAPHIC COMPANY,
1024 ARCH STREET, Feb. 12th, 1891.

To the Public: The undersigned, having severed his connection with the firm of ROBERTS & FELLOWS, has associated himself with "THE FELLOWS PHOTOGRAPHIC COMPANY," and is prepared to execute all orders for *Retouching*, *Developing*, *Bromide* and *Silver Printing*, *Bromide Enlarging*, and

LANTERN SLIDE MAKING,

for *Amateurs* and for the *Trade*, to all of which he will give his personal attentioo.

His record as a photographer of long experience and established reputation will commend his work to all who like quality in their finished pictures. Orders placed with "THE FELLOWS PHOTOGRAPHIC CO." shall have prompt and careful attention. Price lists furnished on application. Respectfully, CHAS. T. FELLOWS.

BACK NUMBERS OF SUN AND SHADE.—We have Nos. 3, 7, 8, 10, 11, 12, 13, 14 of SUN AND SHADE which we will sell at twenty-five cents each, mailing them, post paid, to any address, on receipt of that amount. *They are held at a premium* by the publishers. This offer will hold good only till this stock is sold

THE SCOVILL & ADAMS CO

100 DOLLARS IN PRIZES—For the best flash-light pictures made on THE "CHAUTAUQUA" PLATE prior to March 1, 1891. Send for circulars naming conditions.
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NOW READY, MORAN'S BARGAIN LIST No. 37, fourteen pages. Look out for it. Send your address and secure a copy. R. H. MORAN,
396 Broome Street, New York.

Absolutely Unequalled. The Wonderful Beck Lenses. If your dealer does not have them in stock, write the Sole American Agents, Williams, Brown & Earle, Photographic Supplies, N. E. 10th and Chestnut Streets, Philadelphia. They are mounted in Aluminum, reducing weight one half. Send two stamps for circular.

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39 South 10th St., Philadelphia.

A DOUBLE HOLDER

is now supplied with the

TOM THUMB CAMERA.

These holders are very light and strong and carry two plates. The *Tom Thumb* plate, being $2\frac{5}{8}$ inches square, is used not only for small Portraits, Landscapes and General Work, but also for Lantern-Slides. Enlargements with sharp results can be made up to 12x12 with good effects. Being the Smallest and most Compact Detective in the market, its adaptability as a Satchel Camera (*i. e.*, a camera that may be carried easily in a small satchel), is one of its features. Camera, in polished Black Walnut Case, complete, $10.00. Extra Double Plate Holders, 90c. each.

Send for sample picture and circular to the manufacturers,

THE OBRIG CAMERA CO.,
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Special agents for the Platinotype Process. Printing and Developing done with greatest care.

Chautauqua School of Photography.

The local class 1890–1891 open Monday, December 1st. Term closes the second week of May, 1891.

Class hours from 9 to 12 every Monday and Saturday.

The skylight room and laboratory used by these classes are on the seventh floor of No. 423 Broome Street, New York. (Take elevator.) Separate Classes for Ladies.

Cost of Course of Ten Lessons, including entrance fee, text book, and materials used in demonstration, $7.50.

Special Single Lessons, per hour, each, $1.00.

Cost of Ten Lessons in Portraiture, or special subjects, $10.00.

After completing the regular course, students are admitted to examination, and if passed, are awarded a Chautauqua diploma.

For further information address,

Prof. CHARLES EHRMANN, Instructor,
423 BROOME ST., NEW YORK.

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An unexceptionally first-class operator, experienced in artistic posing and lighting the subject, is wanted to go to a Southern city for a short time, to give points to the proprietor. If a perfect negative retoucher, a permanent situation and good salary is in view. Apply to Charles Ehrmann, care of PHOTO TIMES Office.

SITUATIONS WANTED.

As operator in photo-engraving, line and half-tone. also etching. Address N. J. Hoffman, 337 East 9th Street, New York. 2t

A position for general work in gallery; 12 years' experience; good references. E. N. Boland, 16 Clinton Place, New York City.

By first-class negative retoucher and printer, in city or country town. Best of references. Harry Harrington, 92 N. Aurora Street, Ithaca, N. Y.

An expert operator, lighting and posing the subject his specialty, is open for an engagement. J. W. B., care of Chas. Ehrmann, PHOTO. TIMES Office.

A lady retoucher wishes to do piece work. Photographic studios and amateurs. First-class work, moderate prices. Apply to S. B., care of Chas. Ehrmann, PHOTO. TIMES Office.

A first-class printer and toner is open for an engagement. Understands aristo paper and is able to assist under the skylight and in the dark-room. Frank N. Doyle, 1378 3d Avenue, New York.

Young man, twenty-two years of age, wants a situation as retoucher of negatives or printer; is able to assist under the skylight and in the dark-room. Address S. Cassel, 17 Eldridge Street, New York.

A position by a practical photographer by March; over sixteen years' experience; well posted in wet and dry process. Address Photo, F. K., care of Thos. J. Rache, 94 Washington Street, Newark, N. J.

A competent operator, printer, and fine retoucher with best of reference desires situation in a good studio. Will give one week's trial free, or will retouch negatives by the piece. Address Retoucher, 211 Macon Street, Brooklyn, New York.

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NEGATIVE & POSITIVE FILMS.
THE SEED DEVELOPER
ON THE USE OF DRY PLATES AND OTHER PHOTOGRAPHIC TIPS
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Voigtlander's Euryscope Lenses,

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On the same date Mr. JOHN STALKER will be admitted as junior partner.

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It is neatly constructed with black walnut handle, brass trimmings and a heavily covered rubber roller.

It will be found a very handy tool alike to the professional and amateur photographer.

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IF YOU ARE UP THAT WAY DROP IN.

The Suter Lens in Canada.

BOISSEVAIN, Man., February 7, 1890.
Sirs:—In the possession of the Suter Aplanatic, No. 5 B, I consider I have as fine an instrument as money and skill can produce. For general all-round work, indoor and out, I have no hesitation in saying these objectives are unequaled; their clear definition, flatness of field, and great rapidity, render them capable of faithfully fulfilling the most exacting requirements. There *may* be better; but those who venture on the discovery of such will, I fancy, find them remarkably similar to hens' teeth. Yours truly, JNO. NICHOLSON.

MESSRS. ALLEN BROS. NORWICH, February 1, 1890.
Sirs:—I am more than pleased with the Suter Lens, and would not be without it for twice the amount I paid for it. The one I have is only calculated to take a 11x14, but I have made an extension to my box, and it now cuts out a 14x17 as well as I could wish it to. Would recommend all to try the Suter Lens. I am, sir,
Yours respectfully, HENRY EGGMAN.

MONTREAL, February 3, 1890.
MESSRS. ALLEN BROS., Detroit, Mich.
Dear Sirs:—I take much pleasure in bearing testimony to the excel, lence of the Suter Lens, having had one in use now for over four years. and found it to do everything claimed for it.
Yours respectfully, G. C. ARLESS.

ALLEN BROS., Detroit, Mich. AMHERST, N. S., February 6, 1890.
Dear Sirs:—I purchased one of your Suter Lenses (B No. 4) from Cunningham & Robertson, Montreal, which pleases me in every respect. I would say new beginners who cannot afford to buy a portrait and view Lens would do well to purchase one of these Lenses, as they give every satisfaction for general work. They are equally as good as they are claimed to be for dry plate work.
Yours truly, D. R. PRIDHAM.

MESSRS. ALLEN BROS. WATERLOO, Ont., February 3, 1890.
Gentlemen:—The No. 7 B Suter Lens, which I have had for a year and a half, gives complete satisfaction in every respect. For indoor groups and large heads it is extra good, and for views of buildings and landscapes it is simply grand.
Respectfully yours, E. W. EDWARDS.

ALLEN BROS, Agents,

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The ONLY American Make and SUPERIOR TO ANY OTHER,

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I.—Constant use will not discolor the silver bath.
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IV.—The "*New Matt-Surface*" paper when sensitized will keep fresh for a long time if properly stored.
V.—The price has not been advanced.

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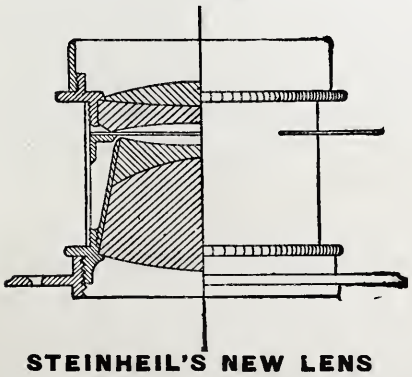
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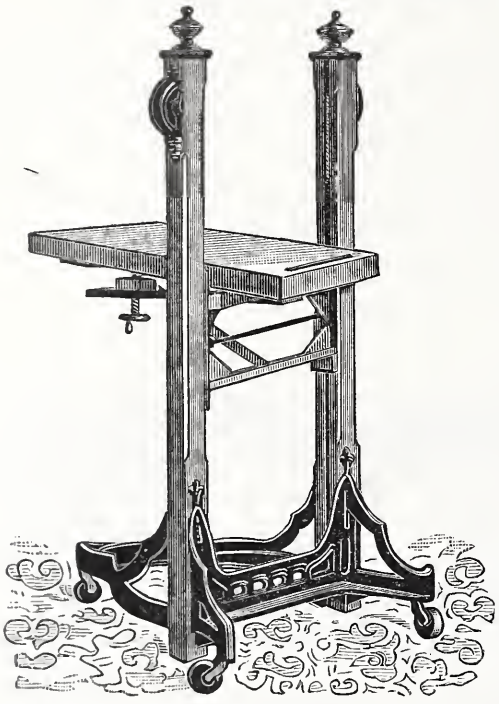
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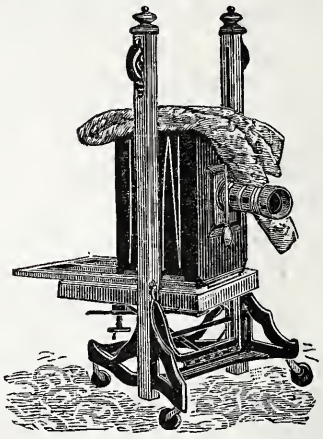
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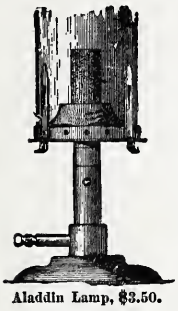
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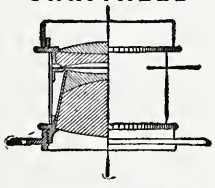
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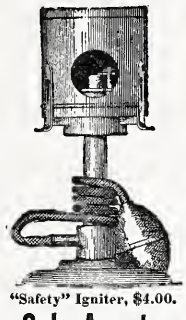
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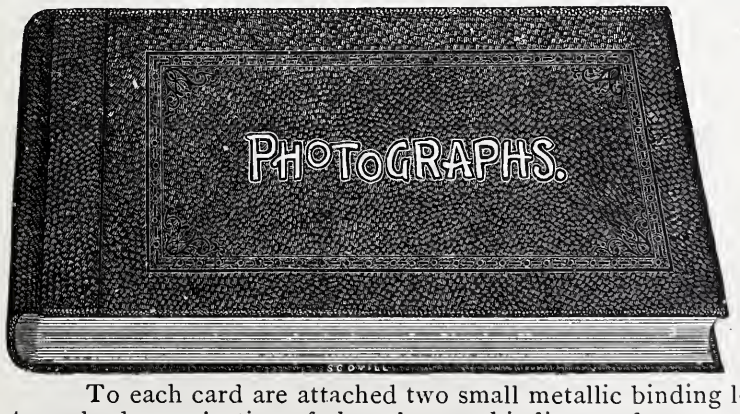
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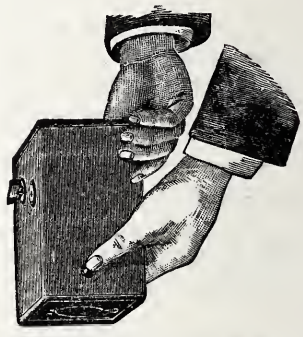
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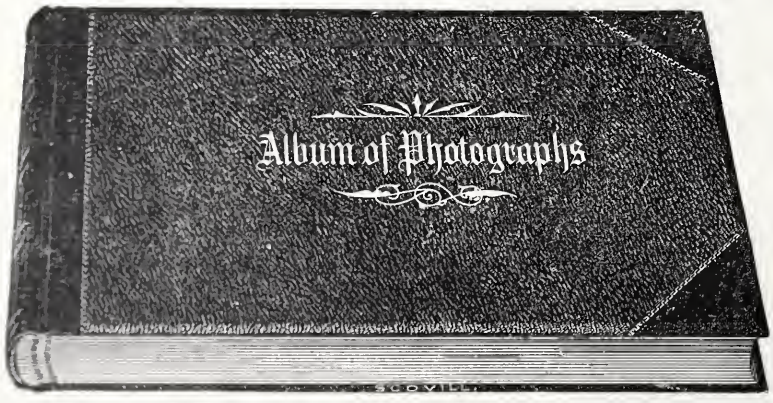
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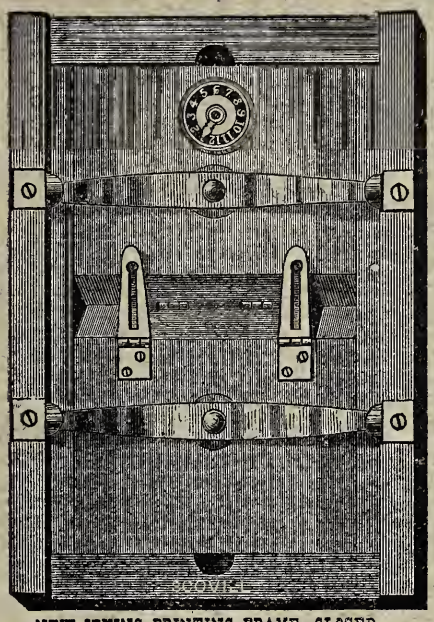
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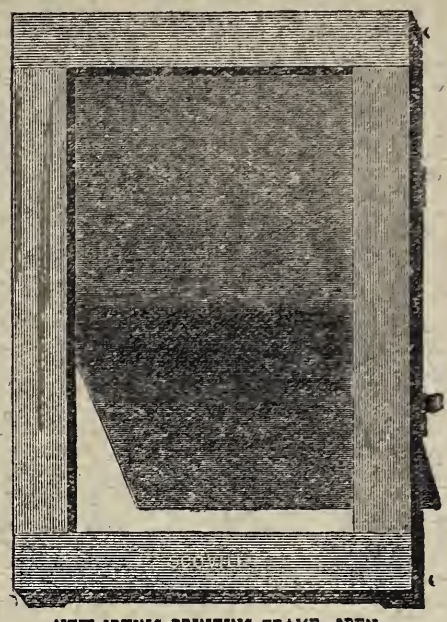
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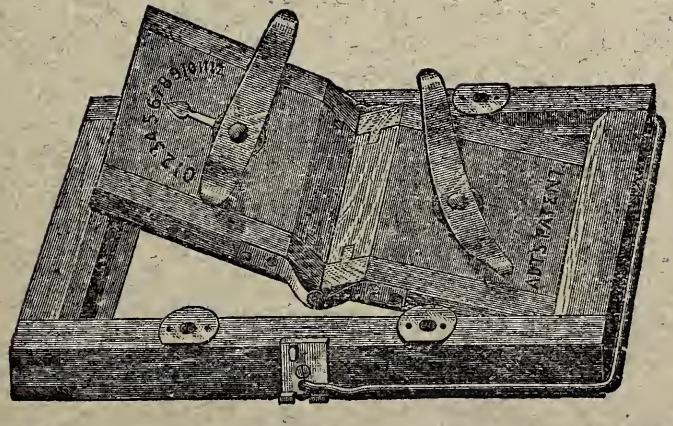
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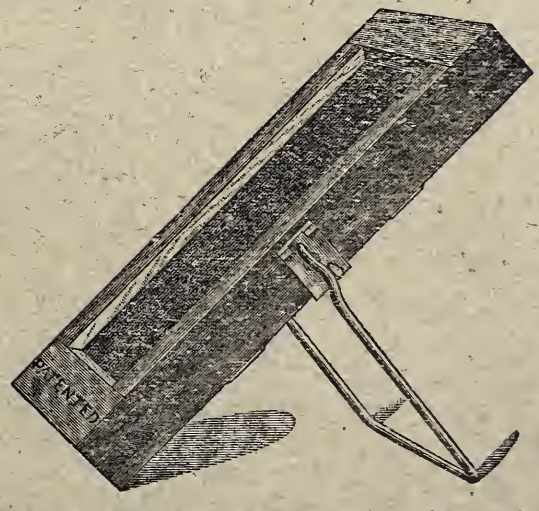
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FOR 1891.

LITMUS—A coloring matter derived from orcella tinctoria, a lichen. Its blue color turns red when in contact with acids. Alkalines restore the blue color again.....142.

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MEADE—We find the brothers Harry and Charles R. Meade in possession of a Daguerrean studio in Albany, N. Y., as early as 1842. They repaired to New York city a few years later and had the first elegantly and sumptuously fitted up gallery at 232 Broadway, where their productions stood foremost..... ...28.

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THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, FEBRUARY 27, 1891. No. 493.

WAITING.

OUR figure picture, this week, is from a portrait negative by J. E. & A. J. Rösch, the eminent professional photographers of St. Louis. The picture was selected for its graceful pose and effective lighting; the strongly marked shadow setting forth the figure, and giving a roundness to it which is quite unusual in photographs. It also gives an atmosphere to the picture, which is very fine for one made in a photographic studio. The picture is one which affords many lessons in posing. The more it is studied the more will be seen in it. The hands—so difficult to photograph—are especially well managed here; and the lines of the broad-brimmed hat are very pleasing and lend an added grace to the figure.

The negative was on one of Wuestner's New "Eagle" dry plates; and the picture is a copyrighted one, we believe.

PHOTOGRAPHY OF COLORS AT THE PARIS ACADEMY OF SCIENCES.

PARIS, FEBRUARY 4TH.

AT a recent meeting of the Paris Academy of Sciences, Mr. Lippmann made known to his colleagues some results in photographing of colors, which, if practical, will be of the greatest importance. It is known that up to the present time, notwithstanding all the experiments that have been made, it has not been possible to fix the colors of the spectrum by photography. Mr. Lippmann has now succeeded in solving the problem of photography of colors. This *savant* laid before the academy several photographs of the spectrum, in which the colors are fixed with their exact tones. These colors are permanent, and may remain for an indefinite time exposed to the air and to the light. The principle of the method employed by Mr. Lippmann is very simple. He uses a sensitive film of a chemical nature, which possesses the essential characteristic of continuity. That is to say, the processes now in use in which the sensitive substance is disseminated in the form of grains, cannot be employed. Moreover, the sensitive film should have for its back a reflecting metallic surface. Development and fixing are done with the aid of the reagents commonly used in photography. The plates shown by Mr. Lippmann to his colleagues reproduced by photography all the colors of the spectrum, and excited the admiration of all present.

Mr. Becquerel stated that in 1849 he had taken up this problem of the reproduction of colors on plates coated with a film of subchloride of silver. The colors that he had obtained at that time are still to be seen on the plates which he has retained in his possession. It may therefore be said that these colors were permanent, since they have survived a period of more than forty years without undergoing any change. These plates, however, cannot be exposed to the light, and have to be kept in obscurity. This objection does not exist in the case of Mr. Lippmann's plates, and the tints which are obtained by a well-known process in physics are in no manner affected by the action of light.

INTEREST increases in the problem of the curative effects produced by the chemical vapors pervading the daguerreotypist's dark-room, which Mr. C. L. Lockman, of Bethlehem, Pa., first spoke of in these columns several weeks ago. The latest communication on the subject is from David Shive, of Philadelphia, who is well known to the photographic fraternity as the inventor of the direct printing solar camera. He also invented Shive's "governor" for steam-engines, etc. His letter will be read with interest. This is the fifth communication we have received on the subject.

"**Every number** of THE PHOTOGRAPHIC TIMES has one or two full-page photogravure studies in connection with reliable accounts of the latest and most reliable processes by votaries of the art."—*Milwaukee Sentinel.*

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PHOTOGRAPHIC SHUTTERS.

[Read before the Boston Camera Club.]

AT the outset I will say that the word "shutter" will be used throughout this paper, not because I deem it a correct name for the apparatus, but because more than thirty years of bad usage have so fixed it in the photographic vocabulary that it would be Quixotic to try to displace it. Of course "opener" would be quite as appropriate or rather inappropriate a name as "shutter;" and of course "exposure" is the proper substitute for both, as its dictionary meaning defines precisely the function of the apparatus.

The earliest mention of shutters with which I am familiar is in a most excellent "Dictionary of Photography," edited by Thomas Sutton and published at London in 1867.

On page 156, under the heading "Instantaneous Shutters," he says: "There are many methods of instantaneously admitting and shutting off the light from the sensitive plate. Mr. Wilson, who has been most successful in getting good pictures with rapid exposures, adroitly uses his Highland bonnet placed in front of the lens. Some use flap-shutters in front of the lens; some a similar arrangement close behind the lens; and Mr. England and others use a guillotine sort of shutter, with a slot cut across it, which falls immediately in front of the sensitive plate. As the slot passes the plate, the parts thus exposed to light receive the full effect of the whole power of the lens. In some respects this is the best instantaneous shutter that has yet been devised, but it is apt to cause a vibration in the camera while in the act of falling."

I have quoted the above because I feel sure that later on you will share with me surprise that the principle of the focal plane shutter, so clearly stated by Sutton, should have been entirely neglected by later workers in the photographic field.

Before beginning original work, it was thought best to test the speeds of the best market shutters. This was done by means of an apparatus which I devised and had the pleasure of exhibiting to the Boston Camera Club some years ago. The principle of the apparatus is simply photographing the image of the sun as reflected by a freely falling, silvered ball, and deducing th etime of exposure by applying a law of gravitation to the linear value of the distorted image.

My apparatus consists of a vertical staff, about 6 feet in height, rigidly attached to an iron bed-plate. The staff is painted dead black and is graduated downward, on its front face, in white lines to feet and hundredths. At the top of staff is a movable piece readily adjusted to the height, which brings the image of the sun as seen upon the surface of the ball exactly in line with the zero of the staff graduation. The silvered brass ball, $2\frac{3}{8}$ inches in diameter and 2 pounds 2 ounces in weight, is suspended by a short piece of silk trant-line attached to a small vulcanite ring, which, in turn is held by a spring-clip attached to the adjusting piece. On opening this spring-clip the ball is released and falling parallel to the graduated staff is received into a padded box attached to the bed-plate.

It is perhaps needless to say that the exposure is made while the ball is falling; and that the length of the exposure is computed from the scale readings of the beginning and end of the black line which marks on the negative the path of the reflected image of the sun.

To facilitate the computation of results, I have prepared the subjoined table which gives the time of falling to the ten thousandth part of a second for each hundredth of a foot from 1.00 foot to 5.59 feet.

The formula used in computing this table is $t = \sqrt{\frac{d}{g}}$ when t = time; d = distance fallen; and g = 16.083 feet—the gravity constant at our latitude.

The manner of using the table will be made apparent by the following example:

An exposure having been made with a Prosch duplex shutter, the beginning of the black line marking the course of the sun's image on the negative was found to be opposite the 4.02 feet staff graduation and its end opposite the 4.29 feet graduation. Referring to the table it appears that

	Ft.	S.
Time of falling.....	4.02	0.5000
Time of falling.....	4.29	0.5165
Time of exposure.....		0.0165

With a well-made shutter the accordance of the results obtained with this apparatus is remarkable. For example three consecutive tests for fastest speed of a Prosch duplex shutter gave the following values:

1st test.....	0.0164
2d test.....	L.0167
3d test.....	0.0179
Mean.....	0.0170

Each test brought into play a different part of the staff graduation.

Table giving the time in ten thousandths of a

second for each hundredth of a foot, for a falling body at latitude 42 degrees 20 minutes.

	0	1	2	3	4	5	6	7	8	9
1.0	2494	2506	2518	2531	2543	2555	2567	2579	2592	2603
1.1	2615	2627	2639	2651	2663	2674	2686	2697	2709	2720
1.2	2732	2743	2754	2766	2777	2788	2799	2810	2821	2832
1.3	2843	2854	2865	2876	2887	2897	2908	2919	2929	2940
1.4	2951	2961	2972	2982	2992	3003	3013	3023	3034	3044
1.5	3054	3064	3074	3085	3095	3105	3115	3125	3135	3144
1.6	3154	3164	3174	3184	3193	3203	3213	3223	3232	3242
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3.0	4319	4326	4334	4341	4348	4355	4362	4369	4376	4383
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4.3	5171	5177	5183	5189	5195	5201	5207	5213	5219	5225
4.4	5231	5237	5243	5249	5255	5260	5266	5272	5278	5284
4.5	5290	5296	5302	5308	5313	5319	5325	5331	5337	5343
4.6	5348	5354	5360	5366	5372	5377	5383	5389	5395	5400
4.7	5406	5412	5418	5423	5429	5435	5441	5446	5452	5458
4.8	5463	5469	5475	5480	5486	5492	5497	5503	5509	5514
4.9	5520	5526	5531	5537	5542	5548	5554	5559	5565	5570
5.0	5576	5582	5587	5593	5598	5604	5609	5615	5620	5626
5.1	5632	5637	5643	5648	5654	5659	5665	5670	5676	5681
5.2	5686	5692	5697	5703	5708	5714	5719	5725	5730	5735
5.3	5741	5746	5752	5757	5763	5768	5773	5779	5784	5789
5.4	5795	5800	5806	5811	5816	5822	5827	5832	5838	5843
5.5	5848	5854	5859	5864	5869	5875	5880	5885	5891	5896

I shall now give the results obtained for speed of a number of well-known shutters tested with the apparatus just described.

I.—Common Wooden Guillotine Drop, with Four Rubber Bands.

1¼ inch slot passing 1¼ inch lens.

	S.
1st test	0.009
2d test	0.009

This shutter passes only 50 per cent. of the light which would fall on the lens if it were wholly uncovered during the action of the shutter. Moreover, it is highly objectionable on account of the violent jar it gives to lenses, often reducing the balsam with which they are sealed to a fine powder.

II.—Gregg Shutter.

In front of No. 3 Euryscope lens.

Spring wound two turns.

	S.
1st test	0.034
2d test	0.035

III.—Prosch Extra Rapid Shutter.

Attached to 00 Euryscope lens.

	Fastest speed. S.
1st test	0.0028
2d test	0.0027
3d test	0.0021

This is a special form of shutter, in which a single narrow radial slot passes across the center of the lens tube. So little light is passed that I cannot regard this shutter as of any practical use.

IV.—Hoover Shutter.

3 D. Dallmeyer lens.
d–0 is the full and d–8 the smallest opening.

	Quickest speed. S.	Slowest speed. S.
d–0	0.058	0.195
1	0.043	
2	0.036	0.130
3	0.031	
4	0.025	
5	0.022	
6	0.017	
7	0.013	
8	0.008	

For want of light anything less than d–3 would be of no practical use, so that the quickest effective speed of this shutter may be placed at

S.	
0.03	With a range up to 0.20

V.—Hoover Shutter.

Large size made for Falk, the well known professional photographer at New York.

Euryscope No. 6 lens.

	Fastest. S.	Slowest. S.
d-1	0.055	0.146
4		0.096
5	0.029	
7	0.017	

VI.—Prosch Duplex Shutter.

3-d Dallmeyer lens. Full opening.
About equal to d–2.

	Fastest speed. Strong Spring. S.	Slowest speed. Weak Spring. S.
1st test	0.0164	0.0302
2d test	0.0167	0.0288

VII.—Prosch Duplex Shutter.

Euryscope No. 2 lens.

Notch.	Strong Spring.	Weak Spring.
I	0.021	0.032
II	0.016	0.028
III	0.013	0.027
IV	0.012	0.026
V	0.010	0.025

VIII.—PROSCH DUPLEX SHUTTER.

00–A Euryscope lens. Strong spring.

The tests with this shutter were very interesting, as they disclosed a second exposure due to the rebound of the shutter wings after closing. Mr. Ed. H. Lyon had been unable to obtain satisfactory pictures with this shutter and returned it to the maker immediately after the tests. The reputation of Messrs. Prosch & Co. for good mechanical work renders it almost unnecessary to remark that the subjoined results are unique.

Notch.		Time from beginning of first to end of second exposure. S.
I.	1st exposure.....0.0122 closed for.....0.0036 2d exposure.....0.0104	0.0262
II.	1st exposure.....0.0100 closed for.....0.0030 2d exposure 0.0089	0.0219
III.	1st exposure.....0.0084 closed for.....0.0029 2d exposure 0.0077	0.0190
IV.	1st exposure.....0.0077 closed for.....0.0031 2d exposure.....0.0061	0.0169

IX.—NEWMAN SHUTTER.

Attached to back lens. Property of Mr. W. G. Read. Set at exposure marked $\frac{1}{100}$ second.

	S.
1st test.	0.045
2d test.	0.048

On February 3d of this year I tested a number of market shutters which were sent to me for the purpose by our President, Mr. Sweet. Of them all it seems to me that for "all around work," where the limit of speed is not desired, the Bausch & Lomb new style is the best adapted to an amateur's use. It is exceedingly well made and has a very large range of automatic exposures extending up 2 or 3 seconds.

X.—BAUSCH & LOMB (NEW STYLE).

Full opening about $1\frac{1}{16}$ inch.

Graduated Time.		S.
$\frac{1}{100}$	1st test	0.016
	2d test	0.018
$\frac{1}{50}$	1st test	0.050
	2d test	0.043
$\frac{1}{10}$		0.047
$\frac{1}{100}$	($\frac{1}{2}$ inch opening)	0.013

XI.—HAND RELEASE BRASS SHUTTER.

Full opening $1\frac{5}{8}$ inch.

	S.
1st test	0.031
2d test	0.029

Shutter jars camera badly.

XII.—ENGLISH TWO-WINGED SHUTTER.

2 rubber bands. Full opening $1\frac{3}{8}$ inch.

	S.
1st test	0.036
2d test	0.034

Shutter jars camera slightly.

XIII.—FRENCH FLAP SHUTTER.

1 rubber band. Full opening $1\frac{3}{8}$ inch.

	S.
1st test	0.038
2d test	0.035

Shutter jars camera slightly.

XIV.—SINGLE FAN SHUTTER.

Full opening $1\frac{1}{2}$ inch.

	S.
1st test	0.029
2d test	0.030

Shutter jars camera slightly.

XV.—LONG SINGLE-SLOT SHUTTER.

Full opening $1\frac{3}{4}$ inch.

	S.
1st test	0.052

XVI.—ROUND BLACK BRASS SHUTTER.

Full opening, $1\frac{1}{2}$ inch.

This shutter was so slow that the ball in both tests reached the box before exposure was finished. I estimate its speed at about $\frac{1}{4}$ of a second.

XVII.—PLUNGE "PATENT" SHUTTER.

Perken, Son & Rayment, London, property of Dr. Tarbell.

	S.
Fastest speed Notch 5	0.054
Slowest " " 1	0.064

XVIII.

Haake & Albers.....
Frankfort a-M.....

.....Thury & Amey
Geneve.
645.

Euryscope No. 3 lens.

Received from Messrs. Benj. French & Co.

FASTEST SPEED.

	S.
1st test	0.009
2d test	0.009
3d test	0.009

SLOWEST SPEED.

	S.
1st test.	0.103
2d test	0.117

An exceedingly well made shutter with a good range of automatic exposures.

XIX.—PROSCH (SPECIAL) DUPLEX.

Made to order for euryscope wide-angle lenses.

	S.
Time exposure, squeezing the bulb as quickly as possible	0.211
Instantaneous exposure, direct compression of bulb	0.031

Instantaneous exposure, released compression of bulb—
1st test..... 0.020
2d test..... 0.021

This is a most conveniently arranged shutter, as it is attached to the front-board of the camera, and carries on its front face a flange which receives any one of a set of wide-angle lenses.

Now, the results which have just been given hurriedly have probably made but little impression on the minds of most of those who are present. A few of you may have had an intelligent interest in the statement of results obtained with some particular shutters with which you are familiar, but in general you probably have but an indistinct memory of a lot of unintelligible figures. Nevertheless, if you had had time to carefully digest the results obtained, I feel sure that you would have reached the conclusion that the average working speed of commercial shutters is about three hundredths of a second; and that while a few of these shutters may be forced to come well within this average speed for test purposes, they are made to do so at the expense of so great a loss of light that they are of but little practical use when so forced.

Three-hundredths of a second is too slow a speed for photographing the quickest motion of animate or inanimate nature; and the successful pictures obtained with shutters of that speed are due to the fortunate coincidence between the moment of exposure and a slower phase of motion. Thus, with such a shutter, the most rapid phases of motion produce blurred plates, which are thrown into the waste box, and science receives but a few special—and therefore misleading—data in place of the many which the art of photography should be made to yield. This generalization forced itself upon Mr. Hubbard and myself after two years of patient experimentation with every conceivable form of shutter applied before, between, or immediately behind the lens; and, at his suggestion, we then abandoned all work in that direction and devoted ourselves to the perfection of the focal-plane shutter as described in the quotation from Sutton at the beginning of this paper.

I know of no commercial shutter which passes more than 50 per cent. of the light which falls on the lens during its action; while the focal-plane shutter has been lying idle for twenty-five years, in spite of its ability to pass close on to 100 per cent. What may be called the "light advantage" of the focal plane over an ordinary shutter is well indicated by the following considerations.

With any form of shutter in which a slot 1 inch in width passes at a uniform velocity behind a lens 1 inch in diameter, the sensitive plate will receive but 50 per cent. of the light which falls on the lens during the action of the shutter. Supposing the lens to be 5 inches in focal length, if the slot is merely moved backward to within ¼ of an inch of the plate, 95 per cent. of the light falling on the lens during the action of the shutter will reach the plate.

Further consideration of the subject shows that in any single shutter placed immediately before, between, or behind a lens of 1 inch opening, the percentage of light passed is equal to the number of inches of slot travels less one, times the units of light per inch Thus a 1 inch slot travels 2 inches in uncovering and covering the lens. Calling the total light falling on the lens during the action of the shutter equal to 100 units, we have 50 units to each inch of slot travel. Slot travel 2 inches minus one = 1 inch x 50 = 50, which is the *percentage* of light passed.

A 2-inch slot would travel 3 inches, and there would be $33\frac{1}{3}$ units of light to each inch.

$3 - 1 = 2 \times 33\frac{1}{3} = 66\frac{2}{3}$, the *percentage* of light passed. Continuing the computation it will be seen that a 3-inch slot would pass 75 per cent., a 4-inch slot 80 per cent., and so on until, in order to pass 90 per cent. of the light it would be necessary to have a slot 19 inches long by the lens in the same time that the focal-plane slot passes over five-hundreds of an inch, which is the diameter of a cone of rays from a 1 inch lens of 5 inches focus at a point ¼ of an inch in front of the sensitive plate. Opposed to this tremendous advantage there is only one theoretical objection to the principle of the focal-plane shutter, and that is, that all parts of the sensitive plate are not exposed at the same time. But practically this objection does not hold good, since the velocity of slot motion may be made so great that there is no sensible distention of the phase of motion of the moving object. Moreover, the possibility of any distention may be eliminated by setting up the camera at such a distance from the moving object that the angular value of its image on the sensitive plate shall be equal to or slightly less than the width of the shutter slot.

The focal-plane shutter which I now show you is the outcome of the experimental work carried on by Mr. Hubbard and myself during the last four years. It consists of a mahogany case attached to the back-board of a $6\frac{1}{2}$ x $8\frac{1}{2}$ camera. The case is $18\frac{1}{2}$ inches long, $9\frac{1}{2}$ high and $\frac{5}{8}$ inch thick outside measurements. At its center is an opening in which may be placed a focusing screen on a 4 x 5 plate-holder.

Within the case are two screens $5\frac{1}{2}$ x $5\frac{3}{4}$ and $4\frac{1}{2}$ x $5\frac{3}{4}$ inches in size. They are made of a very light frame-work of bamboo covered with thin tissue paper rendered thoroughly light proof by the application of a mixture of lamp-black and shellac. These screens run freely on two brass wires strained lengthwise across the wooden case above and below the plate-holder opening.

Attached to the base of the larger screen is a piece of thin sheet steel pivoted to the corner of the base at one end and divided on its lower edge into ten notches one-tenth of an inch apart. Attached to the opposite corner of the base of the smaller screen is a screw stud over which the notched piece may be slipped. By this simple bit of mechanism the two screens may be at will attached to each other with a slot between them varying from one-tenth of an inch to 1 inch in width by tenths. The exposure is made while this slot is passing over the sensitive plate, motion being imparted to the screens by means of a steel pin connecting them with a wooden piston, which in turn is driven through a brass tube by compressed air.

With a $\frac{1}{10}$ inch slot in connection with a 2 B Dallmeyer lens three tests for speed of this shutter have given the following results :

1st test	0.0006
2d test	0.0006
3d test	0.0005
Mean	0.0006

This speed, which we may call half a thousandth of a second, is a severe tax upon the ability of the most rapid lenses and plates to produce pictures. It is obvious that the speed of the shutter may be increased to any desired extent by simply narrowing the width of the slot; but until the market affords us quicker lenses or plates there will be no practical advantage in making exposures of less than half a thousandth of a second.

Francis Blake.

EXPERIMENTS WITH PLATINOTYPES AND BROMIDES.

THE photographic magazines which a year or more ago were full of the former printing process, now, owing partly to the rise in the price of platinum, and partly to the non-keeping qualities of paper thus coated, say almost nothing on the subject. For my own part, I had used up but a few packages of platinotype paper before I decided that it far surpassed any other method of reproduction in artistic results and facility of manipulation; but when I laid aside a dozen sheets for a couple of months, and found them deteriorated beyond restoration, my ardor cooled, and ebbed quite away when, on ordering a fresh supply, I found the cost had nearly doubled. Then, after trying a variety of makeshifts, such as cold development, printing by daylight in broad sunshine, waiting till the picture was fully out and fixing in water, result being a toneless view which yellowed with time, I returned to my bromides. My first experiment was to use the same oxalate solution prepared for the platinotypes, and this I found worked well if double the quantity was used. If the developer is mixed one to six, or one to eight as I prefer, a yellow precipitate is formed which will not bring up any image on the exposed paper. We have all seen this mud-like mixture in our measuring glasses, when the oxalate has not been dissolved. A druggist advises me never to buy the oxalate of potash, owing to the difficulty of getting a pure sample, but to make it according to the following recipe, using a large open dish on account of the amazingly great expansiveness of the solution, when, by adding acid to the carbonate, large volumes of carbonic acid are evolved :

Water	60 ounces.
Carbonate of potash	12 "
Oxalic acid	12 "

Dissolve acid and add slowly to potash, making the solution neutral first, and then acid.

Supposing, however, that one has a pure sample of oxalate dissolved in the right proportion for platinotype prints, it is only necessary, as said before, to double the amount usually added to the iron for bromides. At first I acidified it with a few drops of acetic acid, but not being able to see any difference in the pictures thus developed, and those developed later, without the addition of the acid, I decided it was not necessary, and this conclusion led me to try the bold experiment of also omitting the acetic acid triple bath when the acid hypo was used as a fixer. Believing that everything which can be left undone should be, I was charmed to see the prints come out free from yellow stains without acidifying it. Of course, it is reasonable to know that hypo with acid in it will clear as well as acid first, and then hypo ; but it is satisfying to make sure. I made my acid hypo bath according to the formula in the "Times Annual," page 173, and my only objection to it is the copious freeing of sulphurous acid gas, extremely irritating to any one whose mucous membrane is supersensitive. To avoid inhaling the choking fumes, I covered the pan with a cloth, but I pity those who must stand over it all day; and think

it will hardly become widely used, unless the fixing of plates and prints can be carried on in air less confined than that of most dark rooms.

Of course, I rinsed off my prints after developing before placing in the hypo, and was glad to escape the handling the usual three washes in acidulated water necessitates.

These simple experiments were tried on transferrotype paper, and proved the non-filling qualifications claimed for the acid fixer.

Adelaide Skeel.

PHOTOGRAPHY IN THE COLORS OF NATURE.

(*Continued from page* 93.)

We can, therefore, only hope to produce a picture in natural colors when we are enabled to reproduce upon the same the proceedings which furnish to us the color impression." "The general idea of all colors being based upon the three principal colors, red, yellow and blue, is an erroneous one." "Theodore Young * * * assumes that there are three kinds of nerve fibers sensible to red, green and violet. Objective homogeneous light excites all three; but with red the first is excited strongly, the second and third weakly; with blue, the second and third moderately strong, the first weakly; with violet finally, the third strongly and the first and second weakly. If all three kinds of nerve fibers are equally strongly excited, the impression of white light will take place."

This theory, in accordance with which Dr. Stolze tried to devise a theoretical solution of the problem, is only partly correct, measurements by Clerk Maxwell and others having shown that the "red" sensation is neither affected by blue-green, blue or violet rays, nor the "blue" (violet) sensation by red, orange or yellow rays, nor the "green" sensation by red or violet rays. Neither is it the red rays that chiefly excite the red sensation, nor the violet rays that chiefly excite the blue (violet) sensation.

As a result of elaborate calculations, which, it must be said, could just as well have been made without any reference to Young's theory of color, Dr. Stolze came to the conclusion that if three suitable selective color screens were used in connection with color-sensitive plates, three negatives of the spectrum might be obtained, from which prints in cyan blue, carmine and yellow, if superposed, would reproduce the color effect of the spectrum. He did not show how to make selective color screens calculated to secure the right kind of negatives to carry out this idea, nor state what should be the form of the intensity curves in such negatives of the spectrum. He merely gave a table, showing on what parts of the spectrum each negative should fix color, and said: "If successful * * * in selecting the color screens in such a manner that they will let the colors pass through which are called for in this table, one will indeed be able to reproduce a pure spectrum in this way."

By further calculations he was able to show that this plan, even if successfully carried out, would not insure the correct reproduction of mixed colors. He said: "All pure saturated spectrum colors will also be obtained quite satisfactorily in the reproduction, but the mixed ones only partly." "Oftentimes they have to become more or less impure." "But the clearest lights and a number of mixed colors appear very unsatisfactory." He added: "The intelligent support of the artist can lend improvement," and recommended also the production of a fourth (ordinary) negative, to be used in combination with the others, to modify the effect, especially in the high lights.

This plan cannot be said to definitely represent the application of Young's theory of color, but it may be practically better than anything that that theory would indicate, if we leave out of account the suggestion of a fourth negative.

In 1885, Dr. Vogel published a plan which is a modification of that of Poirée.* Like Poirée, he proposed to make a separate negative for each spectrum region, but instead of using plates sensitive to all colors, and exposing through selective color screens, or illuminating the subject by monochromatic lights, Vogel proposed to sensitize plates specially for each spectrum region, which would amount to the same thing; and instead of projecting the pictures with colored lights, he proposed to make as many pigment prints as negatives, each in a color complimentary to the light which acted to produce the respective negative, and to surperpose them as in the Collen method.

There are no known dyes with which this plan could be carried out, and even if there were, it is, I believe, too complicated to be practicable.

In February, 1888,† I demonstrated a procedure based upon the assumption that, although there are more than three or five or seven primary spectrum colors, all of them—and in fact all the colors of nature—can be counterfeited to the eye by three type colors and mixtures thereof. This was

* *Annalen der Physik* (N. S.), xxvii., p. 130; *Photo. News*, 1887, p. 568.

† *Journal of the Franklin Institute*, 125, 345.

not a new observation, and my plan did not differ very materially from that of Dr. Stolze, minus the complication of a fourth negative, except that it was more definite; and instead of merely publishing it as a suggestion, I found means to carry it out, and made a practical demonstration of it. I proved the process by photographing the spectrum itself, employing compound color screens carefully adjusted to secure definite intensity curves in the spectrum negatives, so that they would make color prints which counterfeited the color effect of the spectrum when superposed. The adjustment of plates and screens to secure *spectrum negatives having definite intensity curves*, which, I believe, had never before been done, made all the difference between an indefinite and uncertain method and one definite and precise.

Promising results were obtained by this process, but I soon came to the conclusion, already reached by Dr. Stolze, that a process might reproduce the color effect of the spectrum, and yet not be capable of reproducing perfectly the compound colors. The solution of the problem was incomplete until I discovered a new principle, according to which such a procedure can be made to reproduce not only the spectrum, but also all the hues of nature.

This new principle, first stated by me in a communication to this Institute on November 21, 1888,* is that of making sets of negatives by the action of light rays in proportion as they excite primary color sensations, and images or prints from such negatives with colors that represent primary color sensations.

In order to understand this principle, I must explain that although the spectrum is not made up of three kinds of color rays and mixtures thereof, the eye is only capable of three primary color sensations—a distinction of the utmost importance, for the reason that the spectrum rays which most powerfully excite a primary color sensation, are not the ones which represent the character of that sensation. The primary sensations are red, green and blue (violet); but it is not the red, green and violet spectrum rays that most powerfully excite these sensations. According to Clerk Maxwell, the orange spectrum rays excite the red sensation more strongly than the brightest red rays, but also excite the green sensation; the greenish-yellow rays excite the green sensation more strongly than the purest green rays, but also excite the red sensation; the yellow rays excite the red sensation as intensely as the brightest red rays and the green sensation as intensely as the purest green rays. Maxwell's diagram is a graphic representation of the result of careful photometric measurements of the effect of the spectrum upon these primary sensations.

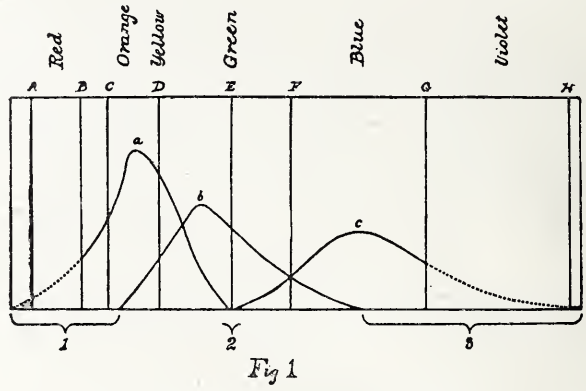


Fig 1

1, 2, 3 are spectrum colors, which represent primary color sensations, because each excites one primary color sensation exclusively, and *a*, *b*, *c* are curves, showing the relative power of spectrum rays to excite the respective primary sensations.* These conclusions are stated and indorsed in all recent text-books on color, and that eminent physicist, Lord Rayleigh, goes so far as to say that the theory is as well proved as the law of gravitation.

I emphasize this, because another theory of color has recently been proposed, which, although it has been circulated in the newspapers as if it had high scientific indorsement, is really inconsistent with established facts, and cannot, therefore, be true.

The carrying out of my new principle, according to Maxwell's measurements, therefore, involves the production of one negative by the joint action of the red, orange, yellow and yellow-green rays, in definite proportions, to represent the red sensation; one by the joint action of the orange, yellow, green and green-blue rays, in definite proportions, to represent the green sensation, and one by the joint action of the blue-green, blue and violet rays, in definite proportions, to represent the blue sensation.

Negatives of the required character can be made by exposing a cyanine-stained gelatine-bromide plate through a double screen of chrysoidine-orange and aniline-yellow of suitable intensity for the red sensation, a cyanine-erythrosine gelatine-bromide plate through a screen of aniline-yellow

* *Journal of the Franklin Institute*, Jan., 1889.

* Taken separately, each of these curves is probably correct; but the three do not compound to represent accurately the relative visual intensity of different parts of the spectrum, because the curve of the green sensation is relatively too low, and that of the blue sensation too high; if the curve of the green sensation be drawn as high as that of the red, and the height of the blue curve be reduced one-half, they will compound to represent fairly a photometric measurement of the visual intensity of the spectrum.

of suitable intensity for the green sensation, and an ordinary gelatine-bromide plate through a double screen of crysophinine-yellow and RR methyl-violet for the blue sensation. The plates and screens are correct when they will secure negatives of the spectrum showing intensity curves substantially like the curves in Maxwell's diagram. The negatives can also be made on certain makes of ordinary commercial gelatine-bromide plates of the most rapid kind, by the use of quite different color screens for the first two, but only with exposures of from five to fifteen minutes on well-lighted landscapes, aperture of objective $\frac{f}{12}$.*

In photographing objects in a changing light, landscapes, for instance, it is important that the three sensitive plates be exposed simultaneously; and in order to accomplish this, I devised a triple camera, having three lenses so arranged in connection with reflectors as to bring all the points of view within a one-inch circle. With this camera, the production of sets of negatives of the required character is a simple and easy matter, it being only necessary to insert the plates, raise the flap until the exposure is made, take the plates out again, and, when convenient, to develop them together, in the ordinary way.

F. E. Ives.

(*To be continued.*)

* I claimed that the production of such a set of negatives as I have described represented the application of a new principle in composite heliochromy. Some photographic *littérateurs* were disposed to sneer at such a claim; but after leaving the matter open for discussion for nearly two years, I applied for a United States patent, and, in view of all the evidence, was granted exclusive right to make such sets of negatives.

Correspondence.

ANOTHER REPLY TO MR. LOCHMAN.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I am pleased to notice that Mr. C. L. Lochman calls the attention of the remaining daguerrotypists to the problem of the curative effects produced by the chemical vapors pervading the dark-room. Generally these properties were attributed to the vapors of the iodine, or those of bromine, or to both in combination. Though the vapors of mercury were always present, they were ignored. Mr. L. seems to consider them a factor, in their nascent combination with iodine and bromine, of equal or greater importance than those of the others.

I will here mention a case that has a direct bearing upon the subject in question. In 1859, in Wilmington, Del., I was introduced to a gentlemen who, in conversation, told me that in the early days of daguerreotyping he had spent six months in the dark-room of a gallery. I asked him if he had since made any use of the knowledge thus gained. He said he had not. I then remarked that I supposed he had, in a measure, set that down as lost time. He said: "Not so—I consider them the best spent six months of my life." He told me that he had been given up by the doctors, to die of consumption, and having a particular friend in the daguerreotype business, he concluded to spend his remaining days with him in his dark-room. But to his surprise, instead of dying he found himself improving, and at the end of six months he was enabled to attend to his former business affairs. He considered himself perfectly cured, and entirely through the means of the vapors of that dark-room. I very much regret that I have forgotten the gentleman's name. If he is still living, a communication from him would be interesting.

Yours truly,

David Shive,
1918 Norris Street, Philadelphia, Pa.

FEBRUARY, 1891.

AN OLD DAGUERREOTYPIST.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I take the liberty of sending you a copy of a newspaper from my native town containing some account of an old daguerreotypist, well known to me since I first went to his "gallery" for my "picter" at about the age of four or five years. I do not know just what process he was using except from some specimens now in my possession, which appear to be clear positives on glass, backed with black velvet. I believe he had a patent on some detail of the process or arrangement.

Our specimen is a genuine daguerreotype, taken while I was yet "in arms."

When the inquiry was lately made through THE TIMES regarding the medicinal effects of bromine and iodine vapors my thoughts immediately turned to Mr. Finley and the vigorous odors which I very well remember in connection with my visits to his rooms.

Mr. Finley's eldest son, who still continues the business (and to whom I feel much indebted for numerous favors during my first efforts as an amateur photographer), has several times told me he got his first lessons in the art in polishing copper plates and working the buffing wheel, and many were the Saturday half-holidays which he spent in that way instead of playing with the boys.

The article, which I have marked, is written by Mr. U. T. Clark, who was for more than forty years connected with the Canandaigua Academy, a greater part of the time as principal. He is a gentlemen well acquainted with the early inhabitants and history of early settlement of the State, and is therefore able to recall many interesting facts and incidents.

Yours truly,

C. D. Cheney.

HOBOKEN, N. J., February 14, 1891.

[We reprint the following from the article referred to in Dr. Cheney's letter. It consists of those parts of a rather long article, which refers especially to Mr. Finley as a daguerreotypist.—EDITOR OF THE PHOTOGRAPHIC TIMES.]

"When Mr. Finley was a student in the Randolph Academy he became very much interested in chemistry, probably without thinking seriously of ever putting it to a practical use. But it happened, as it often does, that a

time came when a new field was opened to human industry, and he was prepared both by his tastes and education to enter successfully into its work. In 1839, Daguerre, a French artist, discovered a process of taking pictures by the action of the sun's rays on a sensitive silver plate.

* * * * * * *

"Mr. Finley, who was then a Log Cabin man, and who was adding his voice to the singing hosts all over the land in the mighty chorus that wafted the first Harrison into the executive chair of the nation [hearing of this], at once determined to construct an apparatus and produce a picture painted by the actinic rays of the sun. Now his chemistry and his fondness for experimenting came readily to his aid, but he must labor under great difficulties. He had never seen a camera, save the old 'camera lucida,' and had never seen a photographic lens, which was entirely different from an ordinary lens, in that it must be achromatic, and the chemical and visual rays must have the same focus. He constructed a camera, got some lenses, and so arranged them that the aberrations were reduced to a minimum, obtained some chemicals at the store of J. B. Hayes, father of the late Dr. J. B. Hayes, procured a silver plate of Mr. Gregory, the silver plater of the village, and put his rude machine and material in the best possible order, and focused the camera upon the most prominent object in view, which was the farm barn. It is well known by all who are familiar with the photographic process, that no image becomes visible upon the plate until it has been brought out by exposure to some chemical agent like mercurial vapor, and also that in the old daguerreotype process, where the plate had been exposed only to iodine vapor, considerable time had to be given to the exposure in the camera, Daguerre giving in some instances twenty minutes. After a proper exposure of the plate in the camera, as Mr. Finley thought, he took it into a dark-room, and with no little trepidation and anxiety began to develop the picture over the mercurial bath. Gradually the outlines began to appear, and in due time the 'barn' stood out in bold relief upon the silver plate. This picture was, doubtless, a very sorry looking affair compared to the magnificent photographs of to-day, but it had an interest which no succeeding one, taken by him, ever had. It was the first one he ever saw, and among the very first ever taken in this county.

"Mr. Finley from that time, 1840, began in earnest the study of this new art, and although he continued his teaching to 1848, he had, by utilizing his vacations, become quite an expert in the work, and on closing his school devoted his time and energies to what he saw would soon become one of the commanding industries of the age. At this time the country swarmed with new-fledged artists who announced their wonderful skill and power to take pictures of men, women, and children, true to the life, and for the mere pittance of one dollar each. Most of us remember how a passion seized every man and woman, especially the latter, to ascertain how the world saw them. Ugly looking men and plain women fancied that they looked much better than they appeared in the mirror, and to prove it, and to have a picture they could with pride show to their friends and place as an ornament on the parlor table, they flocked in great numbers to the 'daguerrean rooms' to be 'taken' by the new and wonderful art. But the pictures were not all satisfactory. Faces, marked with prominent features, great individuality of expression and sternness of aspect, seemed to defy the artists' skill, and their pictures looked very much like the faces of a group of men and women from a mad-house. I remember one gentleman who tried some ten or a dozen times, but was so disgusted with the results that he had one taken of the back of his head, which he keeps with pride as by far the best of the lot. The time of exposure was so long, and as an effort to sit perfectly still, not even winking, was so exacting, that most of the pictures had the expression of an inward agony, rather than of calm repose. In the early stages of this art the image was taken on the plate, or the image was *positive*, and there was no end of the different forms of the objective plates; hence there were the Daguerreotype, the Talbotype, the ambrotype, the tin-type, the ivory-type, etc., merely showing the nature of the material on which the image was projected.

"Mr. Finley opened his first rooms in the second story of I. B. Smith's store, then farther up street on the east side, where he remained until 1849, when he purchased his present residence, the old Atwater home, then standing on the site of Atwater Hall. Subsequently he purchased the brick building on the Chesebro corner, where he has since remained, adding to his photographic rooms his music store, in both of which he has for many years been very successful.

"Mr. Finley from the very first put himself in the front of the photographers of the day. His daguerreotypes were far better than most of those taken by others; and when the negative plate was first used he was among the best operators on the field. He was the first to take a picture of a moving body, and his photograph of the 'moon' created a wide interest. This was long before instantaneous photography was thought of. His success in this work was the more remarkable from the fact that from his youth he has been color-blind, and unable to distinguish shades of color, even very unlike, and yet his pictures in their tone and finish would not suffer in comparison with those of the best operators in the country. He was both by nature and education admirably fitted for the work to which he gave the greater portion of his life; and though not a native of Canandaigua, he has for half a century been identified with all the leading interests of our village, and is rounding off his well-spent life of nearly four score years in the old mansion of the first physician upon the Phelps and Gorham purchase, which bore on its front door the heavy brass knocker with its historic figures '1789.'"

A CLEVER DEVICE.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: The following may be of interest to those who do not know of it. Having had occasion to remove the rubber hose from my Hemperly flash lamp to put on a longer piece for a special purpose, I found it difficult to make the attachment to the metal tube on the bulb. I gave up trying to stretch it and press it on, as a failure. I then split the end of the hose, but on pressing it on then the hose kept splitting; after cutting off the split end, I looked around for something round and tapering that I could stretch the hose on. I found a small paint brush, the handle of which was just right for shape and size. After pressing the hose over the handle, the next problem was how to remove it and put it on the bulb. In stripping it off the handle it curled over on the end, so I kept curling it until it came off, then held the curled end tight to prevent uncurling. I placed the metal tube of bulb up hard against the end of the hose, let go the curl, and it sprang over on to the bulb attachment quicker than I can tell it. This is a quick and easy way to get a hose over a shutter or other attachment.

Yours truly,

Thos. J. Bray.

WARREN, OHIO, February 14, 1891.

The Cyclopedic Index.—"It is a surprise to me that so much information is comprised in so small a space. *Multum in parvo.*"

W. H. SHERMAN, Milwaukee, Wis.

"**It is no exaggeration** to say that the Index is almost as valuable as the 'Annual' itself."—*The Illustrated Pacific State.*

"**It contains** much that is of greatest interest."—*The San Francisco Call.*

Notes and News.

"I hate to miss a single number."—W. H. F. HEATH, Bradford, Ohio.

Professor Elmendorf's illustrated lecture on "Holland" was delivered before the Society of Amateur Photographers of New York, Friday evening, February 20th.

"Rambles in and about Columbus," with the Columbus Camera Club, will be the entertainment of the evening, Friday, February 27th, at the Society of Amateur Photographers of New York.

The Agassiz Association, Manhattan Chapter, will hold a photographic exhibition Wednesday, Thursday, and Friday, March 4th, 5th, and 6th, from three until ten o'clock each day, at 139 East 40th Street.

George G. Rockwood, New York's progressive photographer, who has, for so many years, been located at Union Square, has recently secured much better quarters on Broadway, where he will shortly remove his apparatus, and continue the pursuit of his profession.

Evart Jansen Wendell is the owner of one of the largest collections of photographs of actors and actresses in the country. He has over 8,000. He has them arranged alphabetically in large, bound books of red morocco. Mr. Wendell has also a very fair collection of amateurs.

Dead in His Tent.—SELMA, Ala., Feb. 13.—A woman calling for her pictures to-day found Photographer C. A. McIntyre dead on the floor of his tent, used as a gallery, where he had probably died two days ago, in great agony, from the effects of morphine. He was looked upon as a queer character and was somewhat demented at times from the morphine habit.

The Society of Amateur Photographers of New York have issued a neat pamphlet, containing its Constitution and By-Laws, a list of members, etc. From this pamphlet we learn that the Society at present consists of 250 members, of which 134 are active members, 29 subscribing members, 68 corresponding members, and 13 honorary members.

An International Photographic Congress will be held this year in Brussels, Belgium. A circular letter, signed by the chairman of the convention held at Paris last year, has been issued, notifying all those interested in photography to send suggestions which they may wish to make to the secretary of the congress, so that they may be inserted, if considered suitable, in the programme of the forthcoming congress.

"Rambles in Spain and Morocco," an illustrated lecture to be delivered at Chickering Hall, Saturday evening, March 7th, has already been announced. The slides are entirely the work of Richard H. Lawrence, from his own negatives, made in the spring of 1890. Dr. E. C. Bolles will describe the views. Admission to all parts of the house, including reserved seats, will be fifty cents, and tickets may be obtained from Mr. T. J. Burton, 113 West 38th street.

A Graceful Thing to Do.—A number of photographic views of the rooms of the old Emperor William I. have been taken. Nothing has been changed or moved in those since his death. The views are in an album with explanatory notes. One of these albums was sent by the Emperor to Prince Bismarck, who returned his thanks. Then William wished him joy of the new year.

Phosphorus Photographs.—A novel method of contact printing has recently been described in *Photographische Archiv*, based on the fact that yellow phosphorus under the influence of light is converted into the red allotropic modification which is insoluble in carbon bisulphide. A solution of phosphorus in this solvent is first prepared and poured over a glass plate or lithographic stone, and allowed to dry in the dark. It is then exposed to the light under a negative for about half an hour, when a faint red image is produced. Any unchanged phosphorus is then washed off the stone or plate by a carbon bisulphide to fix the picture. Copper or silver images can be obtained from this by immersing the plate in a silver nitrate or copper sulphate solution, when the red phosphorus reduces the metallic salt. If paper moistened with either of the above salts be pressed on to the plate the metallic image appears on the paper. Further experiments are necessary in order to see whether the above reactions can be used for the reproduction of pictures on a commercial scale.

The Amateur Photographic Conference.—A meeting of the council of the American Photographic Conference was held at the club-house of the Society of American Photographers, No. 115 West 38th street, Thursday morning, February 12th. It was decided to hold the next annual conference in this city on May 26, 27, and 28, 1891. The annual dinner will be held on the evening of May 27. The council decided to publish a monthly journal, called *The American Camera*, which will be furnished free to those who are members of the conference. T. J. Burton will be the editor.

Among those present were Dr. Ely Van de Warker, of the Syracuse Camera Club; George Bullock, of the Cincinnati Camera Club; Dr. George L. Parmele, of the Camera Club of Hartford; William H. Drew, of the Boston and Lynn Camera Club; Professor Randall Spaulding, of Postal Photograph Club; Harry S. Fowler, of the Brooklyn Academy of Photography; Cornelius Van Brunt, of the Photographic Section, American Institute; J. W. Alexander, of the Yonkers Camera Club; and T. J. Burton and F. C. Beach, of the Society of Amateur Photographers of New York.

The Hartford High School Camera Club's Exhibition.—The camera club of the Hartford Public High School will give its second annual exhibition on Saturday, February 28. The committee of arrangements, consisting of W. H. Clark, F. S. Havens and H. A. Perkins, have issued to the members a circular giving the details of the exhibition. Prizes are to be competed for as follows:—

For best landscape, focusing glass, offered by Professor Ferguson; for best exhibit of architecture, a *Scovill* publication, offered by Professor Ferguson; for best tree or

group of trees, keeping tin for paper, offered by Professor Gardiner; for best portrait, vignetter, offered by Samuel Furguson; for best instantaneous, finder, offered by H. A. Perkins; for six photographs showing best tone, 24 grains chloride gold, offered by Mr. J. M. Ney; for best general exhibit, one year's subscription to some photographic periodical, offered by Mr. A. H. Pitkin; for best exhibit not competing for foregoing prize, "*Photographic Times Almanac*," offered by W. H. Clark.

The conditions under which the above prizes must be competed for are given in the circular. Photographs should be handed in to the committee by Monday, February 23. The exhibition will be at the High School.

The Editorial Table.

Photography in a Nutshell. By the "Kernal," London: Sliff & Son.

Useful receipts, formula and advice in practical photographing, extracted from current literature, comprise the bulk of this useful little book. The selections are judiciously made, and much valuable information may be drawn from the little compendium. One of its most interesting features is an illustration by the Kallitype process—a finely detailed and brilliant print, equal in tone to a silver print on matt surface paper.

From Messrs. McGhie & Co., photographic merchants, of 75 Vincent Street, Glasgow, Scotland, we have received two handy desk calendars.

The Photographic Globe has evidently changed hands. Mr. Toch henceforth will be assisted in the editorship by E. P. Griswold, and it will be published in the future at 396 Broome Street.

W. H. Walmsley, Limited, photographic stock merchants at 1022 Walnut Street, Philadelphia, Pa., have issued a "Note Book of Exposures" for the use of photogphers, amateur and professional, which is well arranged, and will be found very useful.

The Third Edition of "Portraits in Crayon on Solar Enlargements," by the veteran E. Long, is enjoying a remarkable popularity. Mr. Long writes us that he is in constant receipt of the most gratifying letters from purchasers, expressing their satisfaction with the work. It has been re-written, and is much enlarged. It is also fully illustrated, and in its present form is sold for $1.

"A Magnificent Bit."—The issue of THE PHOTOGRAPHIC TIMES, January 30th, contains a frontispiece, "A Forest Stream," which is a magnificent bit of scenery, reproduced by photogravure. In addition to many subjects that will instruct professional and amateur, there is a contribution on the practice of daguerreotyping as a cure for consumption.—*San Francisco Call.*

Record of Photographic Patents.

446,529. Photographic Shutter. Garrett W. Low and William Shakespeare, Jr., Kalamazoo, Mich.

"I highly appreciate The Times, and would not feel that I could do without it."

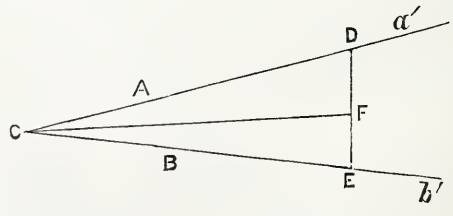
MISS E. A. HOWE, Santa Barbara, Cal.

Queries and Answers.

32 We have recently received several queries to the following effect: "What is the meaning of 'equivalent focus,' and how can the equivalent focus of a lens be found?"

32 *Answer.*—To answer these queries in detail we reprint from E. J. Wall's "Dictionary of Photography" (published by The Scovill & Adams Co.) the following article on "Equivalent Focus."

"*Equivalent Focus.*—A term applied to a compound or doublet lens, and it is the focus of parallel rays entering the lens, and is thus called from the fact of an image formed at that point equaling in size that formed by a single lens. The true point to measure this focus from is actually situated between the diaphragm slot and the back combination; but it is always measured from the slot itself, and is found sufficiently accurate for all practical purposes by focusing any object over 150 yards distant, and measuring the distance between diaphragm slot and focusing screen. The following, however, are methods of obtaining the true equivalent focus of any lens, the first being recommended by Grubb, the optician: On the ground-glass of the camera draw two pencil lines about an inch from the margin at each side. Now set up the camera preferably upon some flat surface, such as a table, upon which is spread a sheet of white paper, before a window, and focus for some distant scene about 150 or 200 yards off, in which there is some distinct feature, such as a church spire or tall chimney. Make the image of this fall upon one of the pencil marks on the focusing screen, and with a pencil draw a line upon the paper along the side of the camera; now bring the image of the chimney or spire upon the other line, when draw another line upon the paper also along the side of the camera; remove the camera, and with a flat rule continue these lines till they cut one another, so as to form an angle, across which draw a line so as to form a triangle, which line must be exactly the same length as the distance between the two pencil marks on focusing screen. Find the center of this base accurately, and connect the junction or apex of the angular lines with the center of the base. This line will then be the true equivalent focus of lens:



The lines A*a*′, B*b*′, are those traced on the paper by the sides of the camera extended till they meet at C. DE is the base, being the exact distance apart of the two pencil marks; F its center, and CF the true equivalent focus of lens. Another method is thus briefly stated: Multiply the foci of the two combinations together, and divide by the sum obtained by adding them together and subtracting the distance of separation. The result is the exact equivalent focus of the two lenses combined. Example:—Find the equivalent focus of lens, the front combination having a focus of 12 inches, the back 10 inches, and the distance of their separation being 2 inches.—$12 \times 10 \div [(12 + 10) - 2] = 120 \div 20 = 6$ inches, the true equivalent focus.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

W. I. LINCOLN ADAMS, Editor.

Issued every Friday.
Monthly (unillustrated) edition issued on the last Friday of the month.

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WITH THE BEGINNING OF THE NEW YEAR many photographers contemplate subscribing to a photographic magazine, and sometimes are in doubt as to which one they will choose.

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Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.

All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

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423 Broome Street, New York.

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When buying photographic cameras, be sure, if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

THE OPTICAL LANTERN, AND LANTERN SLIDES BY PHOTOGRAPHIC METHODS. By Andrew Pringle. New York: The Scovill & Adams Company.

When Mr. Pringle writes anything, photographers, both professional and amateur, who busy themselves with the higher branches of the art, eagerly read his works and profit by his knowledge. Of the two books mentioned the former is the better, not that it contains any more knowledge than the latter, or that it is written in better style, but that it deals plainly and concisely with a subject photographers know little about. Ten years ago it was a trade to be able to handle the stereopticon successfully; to-day hundreds of amateurs show their own lantern slides and work their own lanterns to perfection. His chapter on "deportment of the platform" meets our heartiest approval and should be read by every one who intends describing his own pictures. The two books ought to have a good sale.—*The Photographic Globe.*

Studio Changes.

Aurora, Ill. D. C. Pratt's gallery was burned.

Sheldon, Iowa. C. R. Babcock has sold his gallery.

Springville, Utah. Anderson & Crandal have sold their gallery.

Business Notices.

ON the Pacific Coast, Partridge is headquarters for all goods pertaining to photography. San Francisco, 226 Bush Street. Portland, Ore., 69 Morrison Street.

TO LET.—Old-established Photograph Gallery in Newark, N. J. LOUIS Y. WISS, 755 Broad Street, Newark, New Jersey.

WANTED.—A good retoucher who can assist at operating. Address HENRY FREY, 421 Lackawann Ave., Scranton, Pa.

A BARGAIN.—An 8-inch Morrison Wide-angle Lens, in perfect condition. Cost $30; will sell for $20. Address Wide Angle, care of THE PHOTOGRAPHIC TIMES.

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FOR SALE, at a bargain, a fine 8 x 10 Blair Champion R. B. Camera, D. S.; 6 holders, tripod, carrying case, and fine 10 x 12 Gundlach Rectilinear Lens. Outfit new and first-class; best bargain out. VIRGINIA PHOTO. CO., Waynesboro, Va.

BARGAINS to those who wish them: Interior Ground, Exterior Ground, each 8x8, Large Folding Rock, Bridge, Cottage Window, Set of Gates, Fence, &c. Lever Camera Stand, 8x10, and 10x12 Portrait Boxes, Ferrotype Box with 4 ¼ Matched Lenses on Brass Plate, Green Portrait Shutter. EUREKA PHOTO. CO., Box 320, Rahway, New Jersey.

SIX OF ADT'S large improved Metallic Retouching Pencils for $1. Ask your dealer for them, or send direct to Adt & Brother Waterbury, Conn.

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Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

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First-class operator and retoucher. Photo of self, specimens, reference, and salary expected, care of W. B. Austin, Vandyke Studio, Charleston, S. C.

An unexceptionally first-class operator, experienced in artistic posing and lighting the subject, is wanted to go to a Southern city for a short time, to give points to the proprietor. If a perfect negative retoucher, a permanent situation and good salary is in view. Apply to Charles Ehrmann, care of PHOTO TIMES Office.

SITUATIONS WANTED.

First-class operator and retoucher wants position. John Paetz, 109 Second Street, Brooklyn.

Experienced printer and toner desires a situation at once. Fred. Jaffrey, 170 Essex Street, New York.

As operator in photo-engraving, line and half-tone, also etching. Address N. J. Hoffman, 337 East 9th Street, New York. 2t

Young man wishes a position as general assistant. Has had experience in all branches except retouching. W. L. Winter, Box 30, Carroll, Iowa.

Good operator and all round gallery man. 20 years' experience; not afraid of work; a fair salary and steady employment. Address Photographer, 699 Dudley Street, Boston, Mass.

First-class printer and toner of experience and ability, who is steady and reliable, desires engagement; first-class references, New York and Boston. G. M. S, 152 Sixth Avenue, New York.

First class operator, who is thoroughly up in all branches of the business, is desirous of securing steady position in good house. A1 references as to character and ability. George Fraser, 97 Henry Street, Brooklyn.

Young man, twenty-two years of age, wants a situation as retoucher of negatives or printer; is able to assist under the skylight and in the dark-room. Address S. Cassel, 17 Eldridge Street, New York.

A position by a practical photographer by March; over sixteen years' experience; well posted in wet and dry process. Address Photo, F. K., care of Thos. J. Rache, 94 Washington Street, Newark, N. J.

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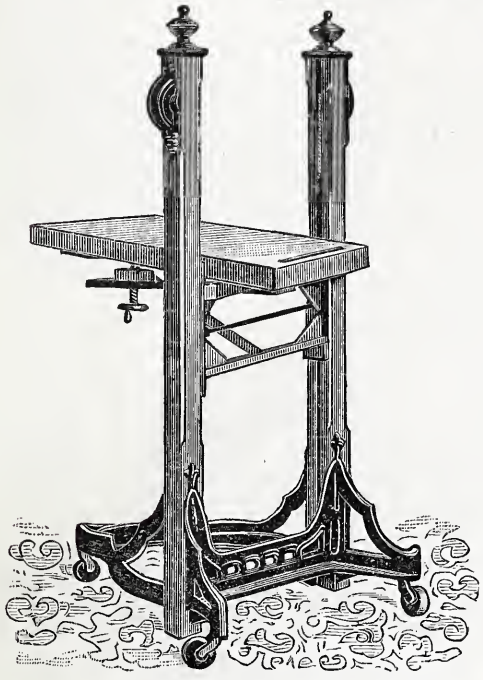
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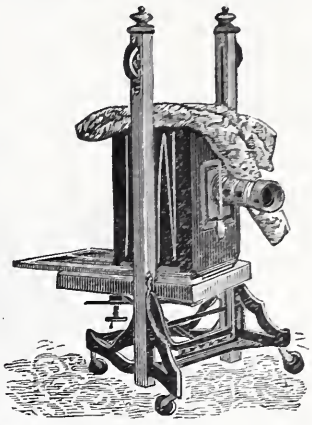
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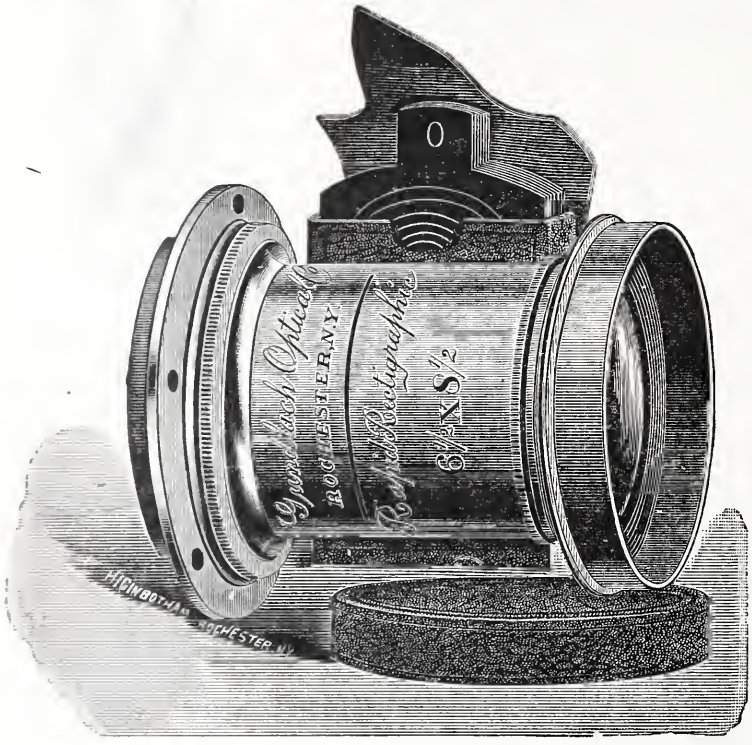
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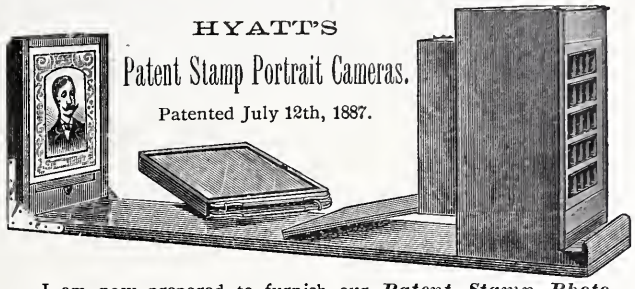
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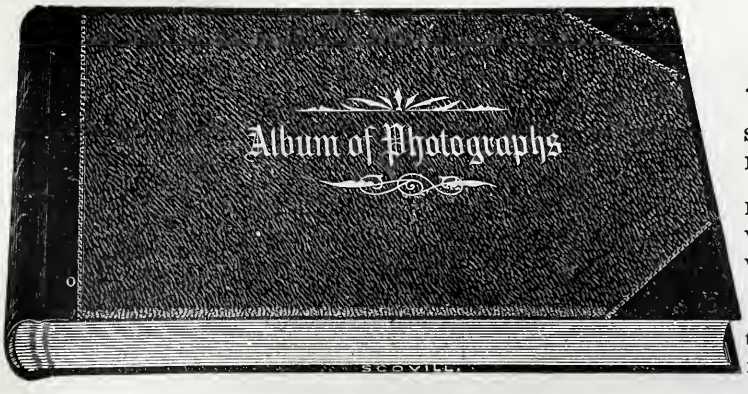
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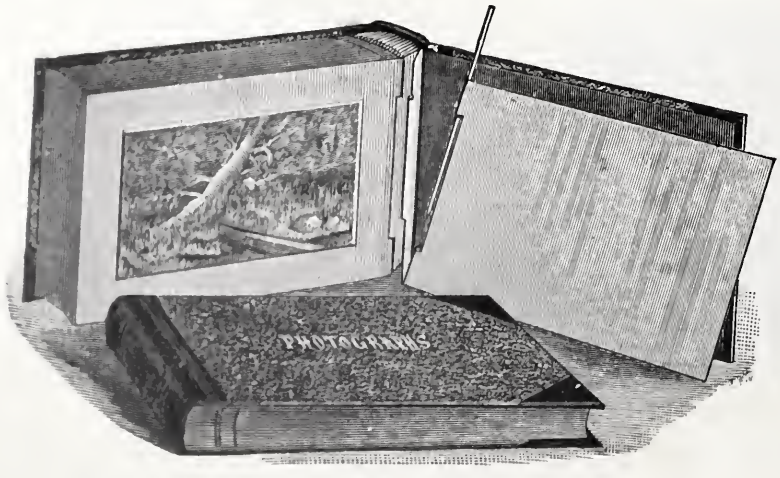


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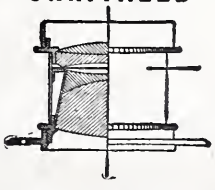
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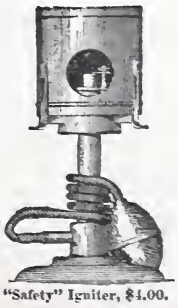
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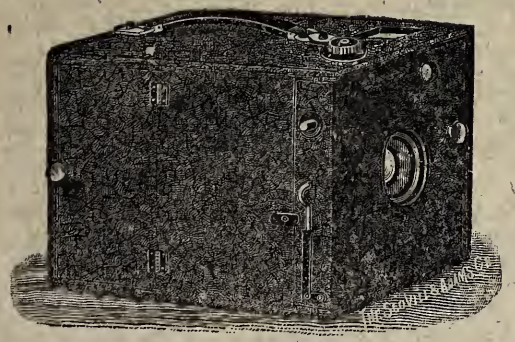
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For commercial purposes, for instance, such as the reproduction of photographs for illustration, it has been demonstrated that collodion "wet" plates are better than dry plates. For the use of the amateur, on the other hand, dry plates are much better than wet plates. Though many new supports have been tried, the sale of glass dry plates is larger now than ever before. Where only a few pictures are to be made on one day's outing it is likely that the experienced photographer will always use dry plates or cut films.

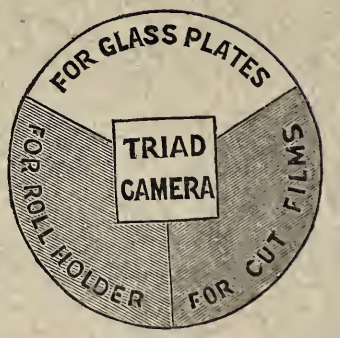
If he is going away for a summer vacation, or for a trip abroad, and expecting to make a large number of pictures, he will procure a roll holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed.

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ROAD AND RIVER.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, MARCH 6, 1891. No. 494.

ROAD AND RIVER.

THE charming view which embellishes this number of our magazine is from a negative by Mr. Edward H. Graves, of Orange, N. J., who, it will be remembered, made the successful photograph of a palm house which some time ago was presented with THE PHOTOGRAPHIC TIMES "This negative," writes Mr. Graves, "was exposed in an 'Albion' camera; was made on a Cramer 50 plate, with a wide-angle lens, smallest stop. It was exposed eight seconds late in the afternoon during the latter part of September, when a yellowish light prevailed. * * * * I am very much pleased with the way that the negative has been reproduced; it certainly reflects great credit upon the Photo-Gravure Company."

PHOTOGRAPHING COLORS.

THE experiments of Professor Gabriel Lippmann in the photographing of colors, which we spoke of last week, are exciting a good deal of interest outside as well as within photographic circles.

A correspondent of the London *Daily News* called upon Professor Lippmann in his laboratory at the Sorbonne, and was shown some of his colored plates. They were all of the solar spectrum. The correspondent reports that all the colors of the rainbow were there, including the infra-red and the ultra-violet, invisible to our eyes. The plates, however, had registered them and kept an impression of them, showing themselves in this respect superior to the human eye. These two mysterious colors were represented in their proper places by two distinct stripes, apparently of a jet-black color—apparently, because it is only our imperfect vision which make them seem so to us, their real colors, of course, being infra-red and ultra-violet. The other colors between these two, red, orange, green, blue, were as vivid as any objects in nature.

"As I was examining these plates," the reporter goes on to say, "an assistant came to say that a colored photograph, the first of a stained window, had just been taken out of the developing bath, and was in splendid condition. The stained window, as I saw on proceeding to the dark-room, was a most primitive affair, four pieces of colored glass, green, yellow, red, and blue, soldered together. 'This is all we could put together,' explained M. Lippmann, 'but it is quite sufficient for my purpose.' The plate, which was not yet fixed, was taken out of its box for a few seconds only. The colors were there, and rendered with photographic faithfulness. A second plate was undergoing exposure, the image of the stained-glass design being thrown upon it by means of a sort of magic lantern lighted by electricity. The plate was pressed against the opening of a trough filled with mercury, which formed a mirror in contact with the plate."

Light, like sound, as is well known, is but a form of motion. Both appear to propagate themselves by a wave-like motion, similar to the ripples on a pond. A curious property of sound or light waves is that when they meet another wave of equal length coming in an opposite direction the conflicting waves overlap each other, the continuity is broken, and a succession of dark and light, or silent and loud, intervals is produced. A French physician at the beginning of this century, Napoleon Savart, was the disoverer of the phenomenon called interference of sound. If the ear is placed at a short distance off a sounding or echoing plate and gradually drawn away, it will be observed that the sound alternately dies away and comes back with twofold intensity. The explanation of this is that the waves of sound, the direct and reflex waves, alternately neutralize and re-enforce each other.

Some time ago it occurred to M. Lippmann that if, instead of a continuous wave of light crossing the photographic plate, a broken line introduced by "interference" were sent across it, the silver, instead of being precipitated in one mass through-

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out the gelatino-bromide, would settle in layers (about the thickness of the soap bubble). By placing a looking glass behind the plate, the red light, for instance, caused the silver to be deposited in layers of half the thickness of a red wave length. Blue light would cause the layers to be somewhat thicker wherever it passed, but these layers, coinciding exactly as they do with the length of a wave of light, can only let pass the same light which originated them. This is the whole principle of M. Lippman's remarkable discovery, and practice shows that it will work in the case of the solar spectrum and of stained windows. Whether it may be applied to landscapes and portraits remains to be seen.

The Daguerre Memorial.—We acknowledge in another column, a contribution of $5, by the Southern Tier Photographic Association, to the Daguerre Memorial Fund. This is a public-spirited act on the part of this association, which we wish might be imitated by other photographic organizations in this country. There still remains about $2,000 to be raised in order to complete the fund, and it is not right that we should keep the sculptor waiting so long for his remuneration, especially when he so enthusiastically entered into the enterprise, laying aside all other (and more profitable) work at the time, so as to have the monument ready for unveiling at the Washington Convention. He has scarcely yet been reimbursed for the actual expenses which he has incurred in completing this monument, and we urge upon all photographers, both professional and amateur, to exert themselves in this matter, and if possible raise the $2,000 yet due before our Buffalo Convention. It is an obligation resting on us all. Let us make a united effort and remove the last cent of indebtedness.

S. W. Burnham, the eminent astronomer, and our well-known contributor, has found a new double star in the vicinity of Hind's supposed variable nebula in Tarsus. Mr. Burnham has discovered more double stars than any other astronomer. An account of his achievements and a brief sketch of his life, accompanying an excellent portrait, is given in the "American Annual of Photography and Photographic Times Almanac for 1891."

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HINTS CONCERNING THE FOREGROUND.

There can be little or no doubt as to the importance of the foreground. Not that I would be understood thereby to mean that the foreground always contains the chief interest of the picture, but rather that the foreground is, in a certain sense, the keystone of the picture. Thus, if the foreground is unsatisfactory in itself, its effect will very seriously detract from all the rest of the picture. It is a matter of common observation that more pictures are failures by reason of defect in this part of the picture than all other parts put together. Therefore a few practical hints, culled from the garden of personal experience, may be of some suggestive service to others.

Some time ago it was very generally held, as a good working rule among painters, that an outdoor scene should consist of three parts, roughly described as (1) *foreground*, (2) *middle distance*, and (3) *extreme distance*. If the first were absent, the impression received was a feeling of want of solidity, reality, and flatness. If the second were absent, there arose the feeling of unreality, that there was some great gulf separating the first and third. While if the extreme distance were ignored, artists said its absence gave a feeling of "being shut in," a want of air and space. Furthermore, we were told that these three parts should be connected, without any great breaks or gaps; so that in looking at the picture the spectator might (mentally) pass from one part of the scene to the other, without having to jump any great separating gulf.

In looking at many photographs, we cannot fail to notice the unsatisfactory feeling which arises when we are confronted with a foreground which is cut away from all else. This undesirable effect is frequently the result of either an injudicious selection of the point of view, arrangement of component parts, etc., or may arise from the use of an unsuitable stop in the lens. In either case the feeling arises that the foreground and the rest of the picture do not belong to each other. It may here be observed that the so-called pin-hole photographs, being all equally well (or ill) defined, do not, as a rule, give the idea of separation of planes. On the other hand, a photograph which is sharp all over, fails to give the feeling of distance. Hence, the *via vera* seems to be the *via media*, viz., a gradual falling away of sharpness and degree of detail as plane after plane recedes into the distance. Apparently there is still room for a new lens which will yield this very gradual scale of detail. At the same time, by thoughtful use of our present instruments and due care in selection of the view-point, etc., much more may be done in

this direction is done, if one may judge from average results publicly shown. One may restate part of foregoing by saying : "*Let your foreground gradually melt into your middle distance, and do not let there be any hard and sharp line where one begins and the other ends.*"

Next, we may regard the foreground as the entrance, the door of the picture. It is generally the part upon which the eye first lights. If the leading theme is situated in the foreground, then all else should be subordinate and merely assist in giving emphasis and support to the theme. If the chief subject is not in the foreground, then its component parts should be so disposed and arranged as to lead the eye up to the chief and principal part ; nor should there be anything in the foreground which is in any way calculated to retain the eye or detract from the interest of the chief subject.

Obviously, then, as first impressions are of utmost importance, and seeing that the foreground generally is the part upon which the eye first rests, it becomes needful for us to see if the foreground contains anything which can convey an unfavorable impression. I wonder how many of my readers can recall instances of unfitness in the foreground. I wish I could forget a very charming bit of river scenery with shipping in the distance utterly spoilt by a "terrible specimen" in a tall (stove pipe) hat talking to a jolly old salt in sou'-wester' ; these pair had evidently been purposely so placed as foreground figures. Such instances are only too abundant. Nutshell number *two* then may be said to contain this hint: "*Do not let your foreground contain anything which may give a bad or unfavorable impression. Let the foreground* (*and any accessories, figures, etc., which it may contain*) *be not only a part but also a desirable part of the composition.*"

It is a very old saying that "unity is strength." Well, now, this may be applied in a somewhat different sense to a picture. A picture that is equally interesting all over is a very uninteresting thing indeed. Its strength is lost in its general weakness. And thus if there is any struggle between the parts of a picture there is disunion and weakness.

Assuming for a moment that we have our three (first-named) divisions in our picture. In whichever of these three we propose placing our chief interest, in the other two we must have subordination. Where all are masters none are masters and only anarchy reigns. Here may we put a finger upon a real and general difficulty with all beginners in art. A natural love of the beautiful impels the desire to *include everything* which is attractive. Hence many a good picture fails from *embarras de richesses*. The foreground and the other parts, each by themselves, are admirable ; but together they are at war with one another for the spectator's interest, and their ultimate fate is that of the Kilkenny cats. The beginner's difficulty is to learn to leave out, to reject, to select. Our *third* nutshell, then, contains this hint : "*Do not attempt to have interest all over your picture. If the interest is in your distance let your foreground support that interest. Be content with having one part strong and let the others add to the strength of that one part, by being subordinate to it.*"

Supposing now that our chief interest lies in the foreground. What then ? What is true of the three parts is also true of the foreground, so far as subordination is concerned. As a fleet is composed of several vessels, one of which carries the officer in command of all, so each vessel also has its own commanding officer. Take at random almost any photograph of river, glade, wayside scenery, wherein the chief interest lies in its foreground. How often do we experience the impression of confusion—too many trees, too many figures, too many boats, etc. ; *all equally worthy of attention*, but no one of them in command. The eye wanders from one part to the other and finds no resting place. There is no one point of interest, because there are so many interesting points. Our fourth nutshell contains this hint then : "*In whatever part your chief interest may be situated, strive to have a due subordination among its component parts. If your theme be situated in the foreground let there be, if possible, one* (*or perhaps two*) *point* (*or points*) *which demands more attention than the surrounding parts.*"

So far, then, we have gathered four hints. For convenience of memory we may (if you please) term these the four laws of

1. *Connection, i. e.*, gradual passage of one part into another.

2. *Fitness* of foreground to the general theme of composition.

3. *Subordination* of all other parts to the one which contains chief interest.

4. *Principality* of some one part of the interesting area.

Lastly, one more yet remains, viz.:

5. *Harmony, i. e.*, the combination of all the parts, and also of all the minor components of each area in such a way that each part has just that prominence which is in due proportion to its *position* and *importance, i. e.*, that its existence is felt rather than known or perceived. As the component stones of an arch exist not so much individu-

ally as collectively, so should it be with parts of a work of art. This has been said again and again, and yet perhaps the old way of saying it is still the best, "*ars est celare artem*," which I would freely translate thus: "Let your art be such that the beauty and success of your work is *felt* as a whole, rather than perceived piece by piece." The inborn tendency to art can only be met by what Emerson has aptly termed "the insatiable demand of harmony in man."

F. C. Lambert.

PHOTOGRAPHY IN THE COLORS OF NATURE.

(*Continued from page* 105, *and concluded.*)

THERE are two ways of making the heliochromic pictures from these negatives. The first method does not produce a permanent picture, but a screen projection.

Lantern slides made from the heliochromic negatives and exactly reversing their light and shade must also represent the effect of the object upon the respective color sensations. One lantern positive, when seen by transparency in red light, reproduces the effect of the object upon the primary red sensation. Another, viewed in the same manner by green light, reproduces the effect of the object upon the green sensation. The third, viewed by blue-violet light, reproduces the effect upon the blue sensation. Evidently, the combination of these three images into one must form a reproduction of the object as seen by the eye, correct in form, color, and light and shade. Such a combination is effected by projecting the three pictures with a triple optical lantern, so that they exactly coincide upon the screen. The result is what we have been led to expect.

We have here a true solution of the problem of reproducing the colors of nature in a screen picture, dating from November, 1888. Previous to the publication of my new principle, it was assumed by Cros, Poirée and others, that if the projection method were employed, each picture should be projected by the same kind of rays as those which acted to produce it. In my method, as I have already stated, a picture made by the joint action of red, orange, yellow and yellow-green rays, but chiefly by orange, instead of being projected by a similar mixture of spectrum rays, is projected by red rays only. Similarly, the picture made by orange, yellow, green, and green-blue rays is projected by green rays only, and that made by blue-green, blue and violet rays, by blue-violet rays only. That is the true principle, yet nothing of the kind had ever been suggested. The process is capable of giving results which are above criticism, except of that hair-splitting kind which applies also to the ordinary photographic process as a means of reproducing objects which have no color. The most serious objection to this method of solving the problem is that its only commercial value would lie in its application to the illustration of popular lectures.

Dr. Stolze, who was one of the first to recognize the genuineness of this solution of the problem, doubted if, even in theory, color prints from the same kind of negatives could be made to furnish such a perfect solution. A year ago I also believed that there were theoretical difficulties in the way of realizing a perfect process with color prints. Only recently have I succeeded in showing what relation the colors of the prints must bear to the colors of light used in projection, in order to perform exactly the same function and, under like conditions of illumination, secure equally perfect fulfillment of theoretical requirements.

In the projecting method we build up the luminous image by adding light to light. White light is produced by the mixture of the three colored lights used for projection, and black by their suppression. But when we carry out the process to produce permanent pictures, the paper which may form the basis of the picture is itself white, and it is the shadows that are built up by the superposition of color prints.

Nevertheless the color print has exactly the same function to perform as the lantern positive, *i. e.*, to absorb and suppress, by its shading, light affecting one primary color sensation. If we remove our three positives from the lantern, the screen is evenly illuminated with white light. If we then replace the one representing the green sensation, its shadows will absorb the green light, with the result that the screen bears a picture in a complimentary color, pink, on a white ground. In the color-print method, we commence with a white surface, which corresponds to the fully illuminated screen, and the shadows of the color print representing the green sensation, when laid upon this surface, absorb the same kind of rays as the shadows of the positive in the lantern, and with the same result, a pink monochrome picture on a white ground. Superposing the other two color prints upon the first one on paper is like inserting the other two positives in the lantern. This explains why the primary sensations are represented by prints having shades of the complimentary (absorbing) color. It is the lights and not the shades of the color prints that represent the effect upon the respective primary color sensation.

It is only necessary to use dyes that completely absorb red light, but neither green nor blue-violet for the print representing the red sensation, green but neither red nor blue-violet for the green sensation, blue-violet but neither red nor green for the blue sensation, in order to obtain from my negatives a color-print heliochrome that exactly fulfills all theoretical requirements, provided that it be examined in the same kind of white light that we obtain in the screen projections, by mixing red, green and blue-violet rays. The dyes mentioned by me in my paper of November 21, 1888 (Prussian-blue, analine-magenta and aniline-yellow) fulfill this requirement, and color-print heliochromes made therewith according to my instructions must, therefore, reproduce all the colors of nature under the conditions of illumination just stated.

We have, then, a theoretically perfect and, at the same time, practicable process of reproducing all the colors of nature in permanent prints from three negatives.

In order to obtain colors that would appear of exactly the right kind and shade in ordinary white light, it would be necessary to use dyes each of which completely absorbed all light affecting the color sensation which it represented, but no other. The colors would then be correct in ordinary white light, but would appear too dark relatively to the white ground. In order to obtain colors that appear brighter in ordinary white light, dyes may be used which completely absorb only rays that excite chiefly single primary sensations and other rays in due proportion. The dyes proposed by me also fulfill this requirement, so that even in ordinary white light the degradation of a color is insignificant, except in the greens, where it is noticeable.

I have seen some of the results produced by the older processes of composite heliochromy, and others who have also seen them will, I am sure, bear me out when I say that the colors have invariably been not only untrue, but either very dull or else flat and patchy and wanting in the delicate details and gradations of light and shade which characterize good monochrome photographs. All that showed bright colors resembled nothing so much as cheap chromos. In the composite heliochromes by my process, which I show to-night, the colors are, as you can see, as perfect in detail and gradation as the monochrome shades of an ordinary photograph.

According to Captain Abney, the pictures produced by the silver subchloride process are "photographs in natural colors." Those which I now show are not so in the same sense, but they are something more and better than that—they are photographs in the colors of nature.

I have already spoken of a class of writers who still believe in the ultimate success of the silver chloride process, or something like it. It is not very surprising that men imbued with such a belief should be displeased with the idea of composite heliochromy, which is something short of a miracle; but the worst of it is that they will not even take the trouble to make themselves familiar with the subject, and almost every utterance they make in reference to it is calculated to mislead the public and discredit true progress. I do not know how many times such writers have assured the public that composite heliochromy was based upon the same principle as chromo-lithography, and was merely the production of colored pictures by the aid of photography. Even Dr. Eder, a most able photographic chemist, is reported to have assured the representative of a London newspaper that my process was "chromo-lithography, in which photography is only an accessory!" Now, there really is such a thing as photochromy, which is carried out on the same plan as chromo-lithography, but it is no more like composite heliochromy than the Morse system of telegraphy is like telephony. In photochromy, it is only necessary for the photographer to make one negative of the object to be reproduced, and this negative contains a register of form and light and shade only. Composite heliochromy cannot be carried out with less than three negatives, which must contain a register not only of form and light and shade, but of color also. In photochromy, an artist is employed to regulate the distribution of colors according to his taste or judgment; in composite heliochromy, it is the light itself which regulates their distribution and combination, automatically, according to fixed and true scientific principles. Photochromy is an art; composite heliochromy a science.

There are others who do make a distinction between photochromy and composite heliochromy, but whose statements are, nevertheless, too misleading to have any value. Only a few months ago there appeared in one of the oldest and most pretentious of the photographic journals an editorial article upon this subject, in which reference was made to "the three primary colors, red, yellow and blue," and all advance made upon the basis of true theory was discredited. Another, writing for an important periodical, said "the red, yellow and blue" theory worked well enough in practice, and classed as an "advanced worker" one who had never got beyond that idea in composite heliochromy, or even contributed anything to its develop-

ment. Dr. H. W. Vogel, taking advantage of the prevailing ignorance, even tried to make the readers of *Anthony's Bulletin* believe that I had claimed as my own something which belonged to him.*

The frequency of such misrepresentation by writers from whom the public has a right to expect something very different, is my justification for assuming the office of teacher and historian long enough to state the facts, which many people have wished to know, but could not discover by reference to current photographic literature.

In conclusion, for the benefit of those who would like to know why this process is not now in commercial operation, having been perfected in theory two years ago, I will say that, for various reasons, it is not practically available to one whose time is nearly all taken up with a business of a different character, and I do not expect to do much with it until I shall have completed preparations which will justify me in making it my chief occupation. In order to carry out the process in strict accordance with the theoretical requirements, means must be employed not only to secure three negatives and three prints, each of which is correct by itself, but each must bear also a certain definite relation to the others. A very little over or under-exposure of any one color print, or a very little too much or too little of the color stuff in the film, will change the shade of delicate colors. Fortunately, there is a simple optical test by which such a defect can be detected without reference to, or knowledge of, the colors of the object photographed; but at present it is difficult to secure such harmony of parts when but little time can be spared to devote to the operation of the process.

Composite heliochromy must always remain a comparatively costly process when carried out in a manner calculated to yield the finest results, and can most profitably be brought before the public in the form of optical lantern lecture illustrations, not with the triple lantern, but with transparent color-print heliochromes mounted as lantern slides. If the color prints are made by the Woodburytype process, such heliochromic lantern slides, infinitely superior to hand-painted ones, can be made in quantity at a cost not exceeding one dollar each.

F. E. Ives.

The "Bulletin" of the French Photographic Society appears in a new dress and enlarged, at the beginning of the seventh volume of the second series, and is henceforth to appear with 32 pages of text in place of 28. The illustration is by Petit's "similegravure" process; and there is a description of a novel form of panoramic camera, also an apparatus for photographing fossils, when the relief is slight.

* *Anthony's Bulletin*, 1889, p. 101.

PHOTOGRAPHING THE SOLAR SPECTRUM.

[A Translation of the Communication to the Paris Academy of Sciences.]

AT the beginning of this century, Lubeck, and in 1841, Herschel, observed that the solar spectrum projected on a coating of chloride of silver, leaves a more or less bright or distinct image imprinted on the sensitive layer.

In 1848 M. Edmond Becquerel entered upon the study of the question with the experimental precision and capacity which characterize the labors of this *savant*. By receiving the spectrum on a sheet of silver covered with a coat of subchloride of silver, he obtains a veritable photograph of the spectrum. The works of Poitevin and other experimentalists added nothing essential to the results already obtained.

These results present an important *desideratum* —the image obtained was not *fixed*, as photographers say; it could only be preserved in darkness; exposed to daylight for a certain time, the sensitive layer, which has preserved all its sensitiveness, whitens over all its surface and the image disappears.

I proposed to myself to obtain colors in photography *completely fixed* capable of being indefinitely exposed to the light. I attained this end by a general method which permits the employment of the various sensitive substances, as also the developers and fixing agents current in photography.

There are only two essential conditions to fulfill:

Firstly. The sensitive coat must be continuous; that is to say, that the sensitive matter (bromide or iodide of silver, etc.) must be distributed in a state of division as it were infinite, in a transparent support such as gelatine, albumen, collodion. In general the bromides of commerce form much too heavy an emulsion for employment.

Secondly. The sensitive coat must be placed against a reflecting surface. For this purpose it is fixed during the exposure in a hollow frame containing mercury, which forms a plane mirror in contact with the sensitive coating. The exposure is made, then the development, finally the fixing, followed by washing in the ordinary manner with hyposulphite of soda or cyanide of potassium. The plate has been exposed dry, and the colors appear there when it again becomes dry.

The theory of the experiment is very simple — the incident rays forming the image in the camera interfere with the rays reflected by the mercury; there results on the interior of the sensitive coat a series of fringes of interference, that is to say, of maximums of light separated by entirely obscure

minimums. Only the maximums imprint the plate; the photographic operations terminated, they are marked by a series of transparent coats of silver reduced, separated by the interval itself which separated two maximums, that is to say, equal to a half-length undulation. In definitive, the sensitive coat is subdivided into several hundreds of thin slices of precisely the necessary thickness—a half-length of wave—in order to reproduce by reflection the incident color, in virtue of this phenomenon of the thin sheets which produce the well-known colors of soap bubbles.

As here the layers reflected superposed are very numerous, the brightness of the proof may be very great. Seen by transparency, the *cliché* is negative, that is, each color is replaced by its complementary—green by red, red by green, etc. I have already found that the colors of the *cliché* may remain with impunity exposed either to the light of day or to the concentrated rays of a powerful electric arc.

To sum up: we see that in this method the luminous vibrations of each kind are inscribed, then reproduced almost like the sonorous vibrations in the phonograph.

Gabriel Lippmann.

H. D. GARRISON.

Professor H. D. Garrison, physician, professor, photographer, a well known contributor to the Photographic Times, died Monday evening, February 23d, at his home on Vincennes Avenue, Chicago, in the fifty-seventh year of his age.

Professor Garrison's interest in photography dates from 1880, and he was always an enthusiastic and busy worker in this direction. He manufactured for a time the Garrison Dry Plate, but not being able to give all the attention to the factory that he found it required to produce the very best plate, he reluctantly gave up the enterprise. Dr. Garrison was a frequent contributor to the Photographic Times and "The American Annual of Photography." He was President of the Photographic Society of Chicago twice, and held a place on the Executive Committee several years; an honorary member of the Chicago Camera Club and member of the Chicago Lanern Slide Club. His loss will be keenly felt by a large circle of photographic friends, who always found the genial professor ready to aid them with information, especially that pertaining to the chemistry of photography.

The following brief sketch of his life is taken from a Chicago paper:

"Professor Garrison was born and raised on a farm in Dearborn County, Indiana, was educated in the college at Marietta, Ohio, and graduated from there about the same time that President Harrison did. Soon afterwards he entered the Cincinnati Medical College and graduated there. When the war broke out he became assistant surgeon of the Fourth Indiana Cavalry, and served throughout the war.

"In 1867 to went to Chicago and started a drug store on Monroe Street, near the old post-office, and at the same time was Professor of Chemistry in the Bennett Medical College. In the great fire his drug store was destroyed, and having no insurance he found himself heavily in debt, but, starting in business again and pursuing his professional duties, he in time recovered from his losses, and paid off every cent that he owed.

"Next he went into the drug-milling business, and was the originator of the present firm of Murray & Nichols, now at Polk and Desplaines streets, Chicago.

"About the year 1875 he became professor of physics, chemistry, and materia medica in the Chicago College of Pharmacy, and in 1883 accepted the professorship of chemistry and physics in the University of Chicago. He had also at one time held the chair of chemistry in Beloit College, Wisconsin.

"In 1878 he was appointed Honorary Commissioner to the Paris Exposition, and spent a year in Europe traveling and studying, and before his return delivered a course of ten lectures before the Royal Polytechnic Institution in London on 'Light and Electricity.' After his return home he resumed his duties in the College of Pharmacy in this city, and held his connection with it until August last, when he resigned and started for the East to give a series of lectures. In October he became ill in Toledo and came back home. The immediate cause of his death was Bright's disease of the kidneys.

"Professor Garrison leaves a wife and three children—two daughters and a son. The latter is a physician in Texas. The oldest daughter is married and lives in New York."

H. A. JOHNSON.

Dr. H. A. Johnson, of Chicago, died February 26th. Aside from his high attainments as a physician, Dr. Johnson was a very skillful amateur photographer, and on his travels always had his 5 x 7 and a hand camera with him. In advising patients to make a journey for health one of his injunctions was always to take a camera and employ their time photographing. The Doctor was specially interested in photographic optics and the chemistry of developing the latent image. He was a very genial, approachable man, and always ready to answer any photographic question in optics or chemistry. He was a member of the Chicago Camera Club Photographic Society of Chicago and Chicago Lantern Slide Club.

INTENSIFICATION.

[Read before the Photographic Society of Philadelphia.]

IN presenting to the society this evening these few notes on intensification, it is not my intention to offer anything new, but merely to call attention to some of the most important details of an old and well-known process—namely, that with mercury and sodium sulphite.

It has been tacitly considered by many photographers that the practice of intensification is a rather reprehensible one, and not to be depended upon for satisfactory results. Yet it should be an orthodox and thoroughly reliable method of procedure. In the days of wet-plate photography intensification with acid pyro and silver was a routine part of the process; now, in the days of rapid plates and thin, soft negatives, full of detail but lacking in density, a reliable method of intensification is just as much of a necessity, and often required. The following method, therefore, many of the details of which were elaborated by Mr. John Bartlett (a member of this society), can be depended upon to give certain and satisfactory results in every case. The details are as follows:

The negative (film or glass) should, after fixation, be thoroughly washed and then dried. The dry negative is then placed in a suitable dish, film side up, covered with clean water, the face swabbed over thoroughly with a tuft of absorbent cotton to remove air bubbles, allowed to soak for a few minutes, and then the water poured off, and sufficient of the following solution poured on to cover the plate. The solution is composed of

Citric acid	60 grains
Perchloride of iron (dry)	60 grains
Water	1 pint

This is kept in constant agitation over the plate for about a minute, and then returned to its bottle, and the plate washed under a running stream of water for about five minutes. This solution can be used repeatedly for a long time before becoming exhausted. Its use is twofold; it tends to remove any thin film of fog upon the surface of the negative, and also furnishes a groundwork for the subsequent deposit of mercury. The plate is now bleached by being placed in the following solution:

Mercury bichloride	½ ounce
Common salt	½ ounce
Water	1 pint

The plate must be frequently rocked while in this solution, and allowed to remain in it until sufficiently bleached. This is regulated by the amount of intensification required. If considerable density is desired, it must be allowed to remain until quite white. This solution is then to be poured off, and can be either thrown away or used for several more plates; the best results are obtained, however, by using fresh solution for each negative. The plate is next covered with a sufficient quantity of the following solution:

Common salt	2 ounces
Water	2 pints

This is allowed to remain on the plate for about a minute, then poured off and thrown away, and the plate well washed under the tap for about five minutes. The object of the salt is simply to dissolve out any mercuric chloride remaining in the film, and prevents the clear portions of the negative from becoming clogged up with any reduced mercury in the next operation. The plate is now returned to the dish, and a sufficient quantity of the reducing solution poured on it to just cover it. This is made as follows:

Sodium sulphite, cryst	3 ounces
Acid sulphuric, conc., 2 fluid drams, or ½ ounce	by weight.
Water	1 pint

The sulphite is dissolved in 12 ounces water, allowed to cool, and then the acid previously mixed with 4 ounces of water added. I should say just here to those not familiar with chemical manipulation that in mixing sulphuric acid and water the acid should always be poured gently and in small quantities into the water, not the water added to the acid, as in the latter case, owing to the violence and heat of the combination, some of the acid might be thrown in the face of the operator.

As soon as the reducing solution is poured on the plate it commences to turn brown and then black. The operation is completed when the *back* of the plate is perfectly dark, showing no traces anywhere of the whiteness caused by the mercury. The negative should then be perfectly bright and clear, and of a brilliant bluish-black color. It is then to be placed under the tap, washed for five or ten minutes to free it from all traces of sulphite, swabbed off with a piece of cotton, and set up in a rack to drain and dry. The reducing solution can be used several times until it becomes exhausted, and is then thrown away. It should never be returned to the original stock bottle. This process can be depended upon to yield in every case good and satisfactory results, and the intensification produced is perfectly permanent in character.

The main points to which attention must be directed in order to secure good results are these :

1. All solutions used must be filtered, clear and free from specks.

2. The negative must have been previously *well washed*, so as to *thoroughly remove all traces of hypo.*

3. The negative must be moistened before the solutions are poured on, so that they will act evenly and uniformly on the plate.

A negative can, if necessary, be intensified immediately after development, fixation and washing, without being allowed to dry, but in this case the density obtained will not be so great as if the plate had been previously dried.

Charles L. Mitchell.

Correspondence.

ART VERSUS NATURE.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: In Dr. Emerson's article in THE PHOTOGRAPHIC TIMES of the 13th of February, "Dr. Emerson's recantation," a serious error is made. The Dr. says, in that article: "Think of the marvelous dexterity of the man who, with pencil, pen and ink, or paint and brush, produces a masterpiece, the drawing equal to that of the lens."

I repeat, this is an error, for the man has never existed, and never will, who can draw with the accuracy of a rectilinear lens. This can be easily proved. Take any subject, from a pin to the Capitol at Washington ; let an artist make a drawing or painting of it, then photograph it ; examine both results, and subject as well, and I think my position will be proved. The fact is, a painting by a recognized master is better than nature. There is no need for the artist to try and rival the camera, his results are so much better. The foregoing is a bold assertion to make in the face of what we have been taught, for we have always been told that art is inferior to nature. One of the first things we notice in a first-rate painting is its suppression of details, thereby securing what is known as breadth of effect. The artist evidently thinks the cutting out of details makes his result better ; if he did not think so, he would paint more minutiæ than he does.

Dr. Emerson is right when he says that an amateur photographer can in a few weeks turn out good technical work. He is right, if he means by this landscape photography, and kindred subjects; but not, if he means portraits of good technical quality as well as a good likeness.

Landscape photography is child's play; but let him work in the operating room of even a first-rate photographer for say six months, and then try it himself, and he will, I think, find it rather disheartening.

Yours,

R. D. Richardson.

BROOKLYN, March, 1891.

PHOTOGRAPHING IN INDIA.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Seeing an account in the October number of THE TIMES of an enterprising Yankee who took a photograph of the citidel at Halifax, N. S., I was reminded of a similar experience of my own. It was my privilege to make a tour of a portion of India last fall, visiting, amongst other places of historic and religious interest, Delhi. I had with me a half-plate camera, and while inside the old fort there I though the king's place (it formerly was such, belonging to one of the old Mogul kings) would make a nice picture. I accordingly adjusted my camera and put in the dark slide, and was in the act of drawing the slide when a voice said in Hindostani, "*Potograp mut koro.*" I did not understand much of the Hindostani, but I knew enough to know that *mut koro* was *don't do;* but why I should not do I did not know, and besides, who was this *native* who was giving *me* orders? While I was trying in English to make him understand what I was doing, and while he was trying in Hindostani to make me understand what I must not do, the cap was taken off, only for an instant. Just then a European orderly stepped up and said : "The captain wishes to know by what authority you are taking photos inside the fort, and he also wishes to see you." I told him I was not aware authority was needed, and that it would afford me great pleasure to visit the captain. I was conducted to the officers' quarters and received very politely by the captain, who finding out that I was a private American citizen and traveling for pleasure, and that I had no designs upon the fort, told me Major W. would be only too happy to give me permission to take photos if I would ask him. I thanked him and withdrew, not feeling under any moral obligations to tell him that the silent pencils of light had already done their work.

Yours truly,

Z. F. G.

BULASON, INDIA, January 3, 1891.

BOSTON LETTER.

DURING the past month theree has been very little of interest to chronicle in the doings of the amateur photographers of Boston. The Camera Club has had a larger number than usual of visitors during the daytime, and the developing rooms have been quite largly used. For nearly three weeks the regular annual exhibition of work by the club members has been in progress. The exhibition as a whole was quite good, especially in the line of bromide work. Last Monday evening the lantern slides contributed to the Exchange by the New Britain and Waterbury Clubs were shown ; and in the opinion of William Garrison Reed—the most severe critic we have upon matters pertaining to such matters—they have been the best that have been shown so far in the club. While speaking of Mr. Reed, it may be of interest to mention that the appeal which he has had posted for so long in the rooms of the club, urging the members to procure some more views for the set of Boston slides which is soon to be sent around the world, bore fruit on Washington's Birthday, when two or three of the members, inspired by extraordinary zeal, managed to secure the long-sought for negatives. This set of slides, which is soon to go on its foreign travels, will probably be the finest one ever sent out by any club; and a great deal of the credit of it is due to Mr. Reed.

The finest photogravure work which I have seen for many days was shown me by Mrs. Jeanette M. Appleton, who has published an *edition de luxe* of her Manchester-by-the-Sea pictures. The subscription price was $10, and as there are only twelve pictures, it can well be imagined

that it is a work of art. Mrs. Appleton, by the way, has secured the exclusive right to take photographs on and around the Natural Bridge, Virginia. She has recently built a small studio there, and will employ a printer to make copies of the several hundred negatives which she proposes to take.

To a lover of artistic photography, some work recently shown me by Miss Sarah J. Eddy, of Providence, will prove delightful. She has made a specialty of grouping flowers, and so successfully has this been done, that from the prints one might think that the negatives are taken in the field.

The Mystic Camera Club have, during the past week, held their second annual exhibition, and for a club that is only two years old its progress has been remarkable. Over five hundred prints are exhibited by the thirty-four members, and although the work as a whole is nothing extraordinary, there are a few prints which deserve special mention. There is one curiosity in the way of photography which I have never seen before. Mr. R. I. P. Goodwin, while exposing a plate one evening in order to take a lightning flash picture, had the flash occur behind the camera, so that the whole landscape in front was illuminated, and from this instantaneous light a good negative was developed, giving a picture in which the farthest as well as the nearest points are brought out in perfect detail. In fact, the picture appears precisely as though taken by daylight.

Speaking of flash pictures, there is another curiosity exhibited in Boston, which should be a warning to all who use the newly invented magazine flash light lamps. One of these exploded recently, when the operator attempted to produce a flash picture, and when the plate was developed, a most curious result was apparent, for in all directions across the picture run thin curves of light, in parobolic lines, appearing as if several dozen skyrockets had been let off in the room.

One of the members of the Postal Photographic Club informs me that it has been suggested for the members of the club next summer to charter a canal boat fitted up for their own use, and make a trip through one of the most picturesque canals. Whether this scheme will be carried out or not I do not know.

Walter G. Chase.

Notes and News.

W. T. Demarest was elected a delegate to the American Photographic Conference, by the Manhattan Chapter of the Agassiz Association.

A Photographer, Charles S. Shepherd, of Melvin Village, N. H., has started a newspaper devoted to the interests of his town, entitled *The Village on the Lea*. The first number makes a promising appearance. Mr. Shepherd is also editor and proprietor of another paper, *The Anti-Tobacco Gem*.

"The Gem" Portrait Studio has been opened at 495 Sixth Avenue, New York City. The proprietors are sending out a limited number of coupons, entitling the holder to special inducements in the "French Enamels." The coupon entitles the holder to one-half dozen of these photographs for $1.25.

"The Edition de Luxe of the 'Photographic Times Annual' is so artistically bound that it would form an appropriate addition to the marvellous collection of a Grolier Club."—*The Photographic Globe.*

The Law about Photographs.—Richmond, Va., Feb. 19.—Judge Leake, of the Richmond Chancery Court, to-day decided that photographers cannot expose in their windows photographs taken by them except with the consent of the persons interested. The case is a novel one and the first of the kind passed upon by a Virginia court.

The history of the case, briefly, is this: Davis, a Broad Street photographer, some time ago sold to a florist a lot of rejected negatives which he wanted to use to cover his hothouse. Foster, another picture taker, bought 400 of the negatives from the florist, and from these printed photographs and exposed them as specimens in his gallery in Ninth Street Davis obtained an injunction to prevent Foster from so using the negatives, and the court made permanent the injunction.—*New York Times.*

Talking about Photographs, one of the gossips says: "The reason that actresses are so successfully photographed is that they understand the laws of photography and conform to them. They usually assume the direction of the performance for themselves and the photographer is willing to let them. Mary Anderson always superintends every detail of the operation that puts her features upon paper. Her London photographer says that no picture of her face, except in direct profile, was ever made without having the negative changed so as to make the outline of the cheek a little flatter than it naturally is. Miss Anderson thinks the contour of her full face is not oval enough, and so she is careful that any photograph of her shall remedy the imperfection."

Most young girls away from home and at boarding school seem to run to photographs. These girls do in spite of the fact that stout, middle-aged ladies and gentlemen are not usually capable of lending a great decorative effect. From the quantity of photographs in each girl's room it certainly appears as if the friends of these young women must live in a state of having their pictures taken continually, probably by way of consoling themselves. There are photographs arranged in patches on the wall, and photographs on the tables and bureaus, and more photographs in frames and albums and wall pockets; and whole friezes of photographs around some of the walls.—*New York Sun.*

Actors' Photographs.—In recent conversation with an artist of eminence who has photographed nearly all the celebrities of New York for the last twenty years, he gave me his views in full, part of which are here set down:

"Madame Modjeska is usually very particular about her pictures, and shows remarkable taste. This is also evident in her costumes. She has a very classical figure.

"Mrs. Potter's face is broad and short. She is a pleasant sitter. Her costumes are all exquisitely tasteful. She is naturally graceful. Her great beauty, however, is in her expression. She has a very lithe figure, and is full of life. It is a peculiarity of Mrs. Potter's figure that her hips are like those of a young girl. That is why her figure has so much sweep to it. This is due to the fact that she wears no corset, so she told me.

"Look at Mrs. Langtry, on the contrary. Her shoulders are wide, waist extremely narrow and hips very large. It isn't natural, and can never be lithe and graceful.

"Mrs. Langtry has a more beautiful face, but not so fine a figure as Mrs. Potter. The beauty of Mrs. Langtry's figure is in her bearing. Her head sits beautifully upon her shoulders. Her hands and feet are large.

"I think Ada Rehan is the best sitter I ever had. She is very graceful and artistic, and poses before the camera exactly as she would if she were on the stage. Whenever she enters the studio she brings in a whole flood of sunlight. And then her charming little bonnets!

"Patti? Well, the only thing I have against her is that she hss dyed her hair. It destroys her good looks. She is a brunette of the pronounced type; deep black eyes, Spanish olive skin, and red hair. Why did she dye it? Well, no doubt it was turning gray, and she likes to look young, but it occurs to me that it would have been easier to dye it black.

"Davenport makes a noble picture. She has a very dramatic way about her. Her figure is perfection itself. She is tall and has a fine face. Just now her figure is inclined to obesity.

"Kate Claxton is a good sitter, and very graceful. She keeps her age well.

"Georgie Drew Barrymore takes a splendid picture. Her character pictures as she appears in 'The Senator' are excellent.

"Booth is particularly averse to posing in character, and has not done so for years. All his pictures are taken in 'private.' He is a good poser, rather careless, if anything, but makes a fine, dignified picture.

"What a pity that neither Booth nor Salvini will be taken in character. Why, when these great men die we will have but the memory of them left. Just see how valuable such portraits of them would be. Just think if we had Booth taken in some of his great emotional scenes—parts from 'Hamlet,' 'The Merchant of Venice,' or 'Richelieu.' Or if we had pictures of Salvini as Sampson, or in some of his mad rushes in 'Othello.'

"I have with a 'snap camera' taken Francis Wilson in all sorts of funny attitudes and characters. He is one of the best subjects I ever had."—*N. Y. Call.*

Photographic Societies.

THE PHOTOGRAPHERS' ASSOCIATION OF NEBRASKA.

THIS association held its first semi-annual meeting at Omaha, Neb., on the 19th of February. About six months ago a preliminary meeting was held at Lincoln, Neb., when the following officers were elected to serve one year, F. M. Reynolds, President; N. J. Anderson, First Vice-President; J. A. Hayden, Second Vice-President; A. Smith, Treasurer; M. M. Slowman, Secretary.

The dues are $2 per year, and an initiation fee $1.

There was an attendance of about forty members, but there would have been many more were it not for the lamentable condition of the photographic business in general throughout the State, which all photographers met at this convention attributed to the now almost universal low prices.

The meeting was called to order by President Reynolds at 2 P.M., and a long discussion took place with regard to prices. All present were invited to take part, whether members or not.

Mr. John Verran, of the Iowa State Association, said that no member of this association would take an apprentice for a less sum than $100, or for less than one year's study. They wanted to put a stop to turning out photographers every three months, which was being done in the west.

One member proposed that they should put up a forfeit, in order to bind the members to their agreement to a scale of prices, but it was not approved.

Mr. C. Gentile was called on for a few remarks. He stated that the matter of prices was in their own hands, because in a great measure it depended on the class of work they produced for their customers. The photographers who did the best work obtained the highest prices. A man who had business ability and could produce good work could go to a new place and at once obtain good prices. He cited the instance of Theodore Marceau, who went to San Francisco and in a few months put himself at the head of the profession. It was true that all might not have the advantages of as much capital, but good artistic photographs would command a good price.

He called the attention of the meeting to the new prizes offered by the Photographers' Association of America to be held at Buffalo, which would encourage operators, printers, and retouchers, as well as the proprietors of galleries. The could rely on the photographic press aiding them in their endeavors to better their condition in the State of Nebraska. The price question was a very difficult question to solve, but in time it would work itself out. In Chicago there were galleries where photographs were made from 75 cents a dozen to $12. Now no one paid any attention to the prices of others.

Mr. J. B. Sturdevant, of Atkinson, said he came for improvement and not for legislation on the price question. He was much gratified by the exhibit made by the Seed Dry Plate Company and the Cramer Dry Plate firm. He considered that they would all derive much instruction from such an artistic exhibit. They could all go home and try and imitate what they had seen. He felt fully repaid for attending the meeting. The display of photographs from leading photographers would teach them much. They could all be improved by meeting together. Mr. Sturdevant concluded by saying he was a subscriber to THE TIMES.

At the evening session the representatives of the aristo paper explained the manipulation of their paper and the advantages claimed for it.

The committee appointed at the afternoon session to draft resolutions "how to devise means and ways how to do away with Cheap Johns," made their report, which was as follows:

"In no case should cabinets be made for less than $3 per dozen. And in bad cases of cutting prices a committee of investigation should be appointed with power to act in the matter, and to take such action as they deem proper, and to make an assessment on all members."

The committee's report was accepted and approved.

It was proposed and carried that the society meet only once a year in the months of January and February, and at their next meeting all members should make an exhibition of photographs.

The next meeting will be held at Omaha.

The Editorial Table.

The New Photographic Review.—No. 1 of Vol. I. of *The Photographic Review*, "a journal for the advancement of photography," has been issued by its publishers—Messrs. Sweet, Wallach & Co., at 215–221 Wabash Ave., Chicago, Ill.

It makes an attractive appearance, containing, in addition to the salutatory, the article which appeared in our magazine some time ago by Mr. O. G. Mason, on a "Safe Light for the Developing Room;" "Fallacies as to the Limit of a Development," by Cyrus Prosch, in the "*American Annual of Photography and Photographic Times Almanac*" for 1891; a description of a "Porcelain Graduating Pitcher for Mixing Eikonogen Developer," and some standard formula, recipes, and other useful information.

We wish our young contemporary a prosperous career.

"Representative American Yachts," a collection of 100 views, photographed by Henry G. Peabody, with descriptive sketches by George A. Stewart, Yachting Editor of the *Globe*, is an important photographic work. It is to be issued in ten parts, each part containing the pictures of ten yachts. The claims which such a collection must present in order to secure the attention of yachtsmen are uniform excellence, both artistically and technically, of the individual views and completeness of the series. Judging from the first part which has been issued, we should say that these claims had been fully met. Ample time had been devoted to the work, and great pains have been taken to secure perfect views of every boat under favorable conditions.

Mr. Peabody's work is too well known to require comment. He has repeatedly received the first prize at the conventions of the Photographers' Association of America.

The reproductions are made by the Heliotype Printing Company of Boston, and are entirely satisfactory. The letter-press, written as it is by an authority on the subject, is all that could be desired.

Part I, which has just reached us, is neatly bound in an ornamental cover, on which the start of the Goelet Cup Race (August 5, 1887) is reproduced from an excellent photograph. The yachts depicted in this part are the following:

Two views of "Volunteer;" one each of "Mayflower," "Puritan," "Atlantic" and "Priscilla." Of the schooners we have an excellent portrait of "Merlin," "Grayling," "Ramona," and "Oenone."

After the delivery of the tenth part, it is the publisher's intention to issue an annual supplementary part in October of each year, containing an illustration of boats built during that season. Subscribers may have each part at $2 each, but should send in their subscriptions at once, as only enough copies will be issued to meet the actual number of subscriptions received. Specimen parts may be seen at Mr. Peabody's studio in Boston, 122 Boylston Street, or at W. C. Cullen's, dealer in photographic supplies, 61 William Street, New York.

Record of Photographic Patents.

446,880. Shutter for Photographic Cameras. Henry B. Norton, Minneapolis, Minn.

"**The Times** is generally fortunate in its reproductions, but this ('Cupid After Wings') is an unusually good specimen."—*The American Amateur Photographer.*

Queries and Answers.

33 WESTFIELD wants to know if black needle paper pasted on the glass side of an emulsion plate will be sufficient to prevent halation.

33 *Answer.*—It will. But it is better to cover the back with a red or black water-color paint, or apply to it a paper coated with pigment mixed with gelatine, which can be easily stripped before developing the plate.

34 NEWLAND.—Can bromide prints be fixed in the acid hypo bath?

34 *Answer.*—They can most certainly. It clears the whites, hardens the gelatine, and when using it, you may dispense with the intermediate clearing bath of acetic or citric acid.

35 MISS W. A.—What is the cause of platinum prints sinking into the paper, and when dry losing all vigor and brilliancy?

35 *Answer.*—The hot developer washes the gelatine sizing from the paper, and if there is any left the hydrochloric acid of the fixing bath will destroy it. Moderately warm potassium oxalate solution will hardly produce the effect. To restore brilliancy soak the print in a solution of gelatine, 4 ounces to 40 ounces, and add 2 ounces of alum, or what may be still better, rub the print with encaustic paste, for which an excellent recipe may be found on page 337, "American Annual of Photography for 1891."

36 G. W. G.—The spotting on my albumen prints comes off under the pressure of the hot burnisher, or is spread into elongated streaks. How can that be prevented?

36 *Answer.*—Make a mucilage of 2½ drams gum arabic, 20 drops of glycerine, 16 ounces of water, and 2 drams of alcohol, and mix with ½ an ounce of it to 16 grains of dry prepared ox-gall, with which the retouching medium, India ink, neutral tint or any other color is intimately rubbed in a mortar, and dried. For spotting take up but little of it with a brush not too wet and apply to the print. When perfectly dry, spotting with this medium will stand a tolerably high heat and pressure.

37 MONTAGUE.—We answer your query as follows: "Photographischer Zeitvertreib," by Herrmann Schnauss, has been translated into English, and been published by Iliffe & Sons, 3 St. Bride Street, Ludgate Circus, E. C., London.

38 FRED. W. M. has been troubled with ferrotypes of a greenish blue color. All chemicals are of the same quality as formerly employed, when my pictures were of a beautiful pearly white. My new operator asserts the silver nitrate contains copper: is that so?

38 *Answer.*—It is not so. Your new operator is in too much of a hurry, and does not wash the plate sufficiently before it is fixed in the cyanide of potassium bath. When the least trace of iron remains on the plate, the formation of Prussian blue will give the plate the color spoken of.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

W. I. LINCOLN ADAMS, Editor.

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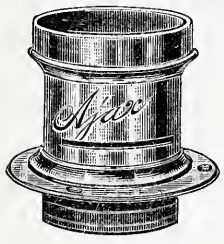
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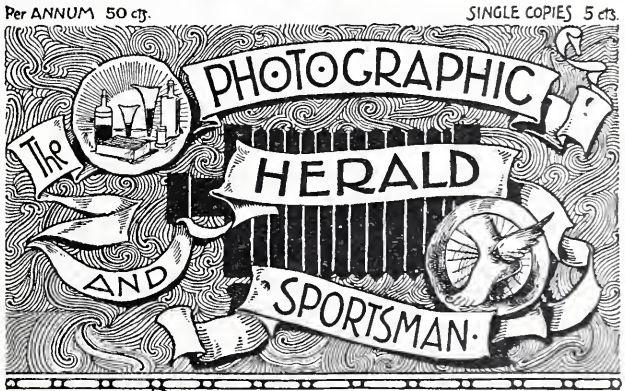
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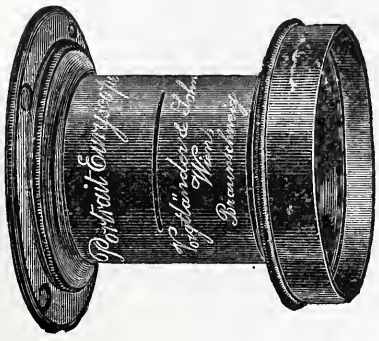
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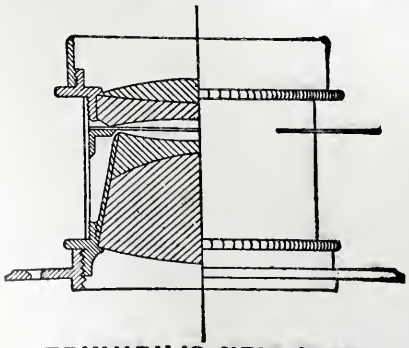
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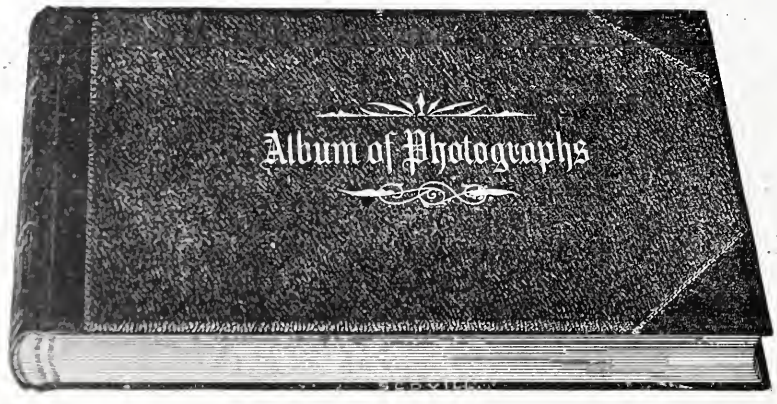
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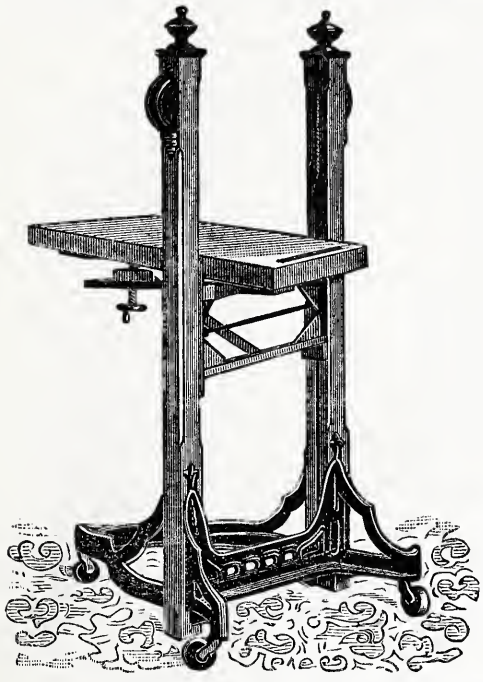
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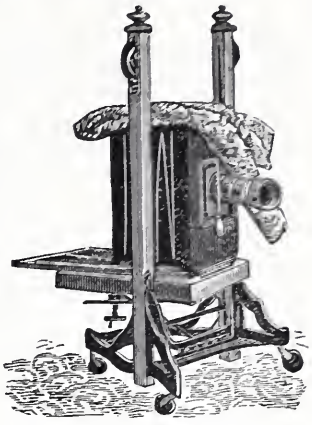
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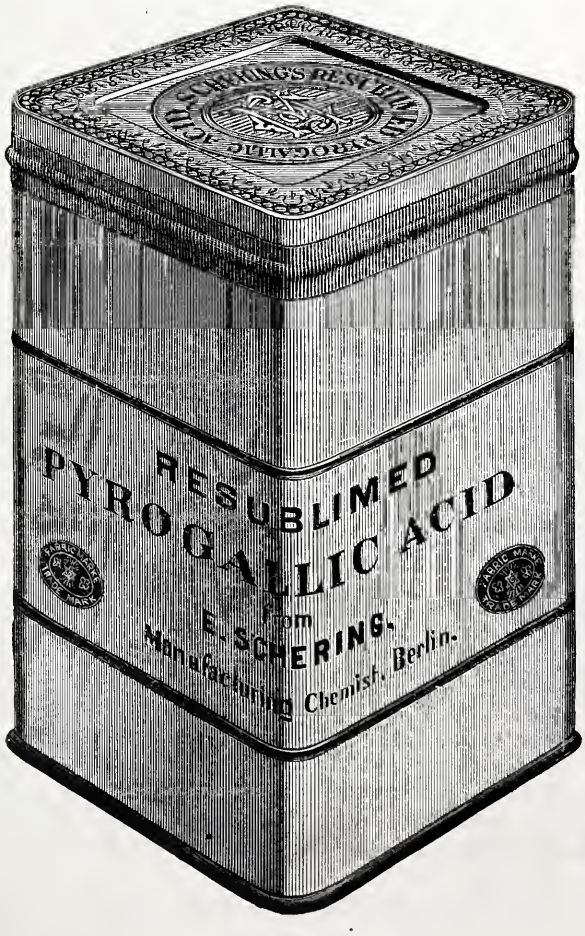
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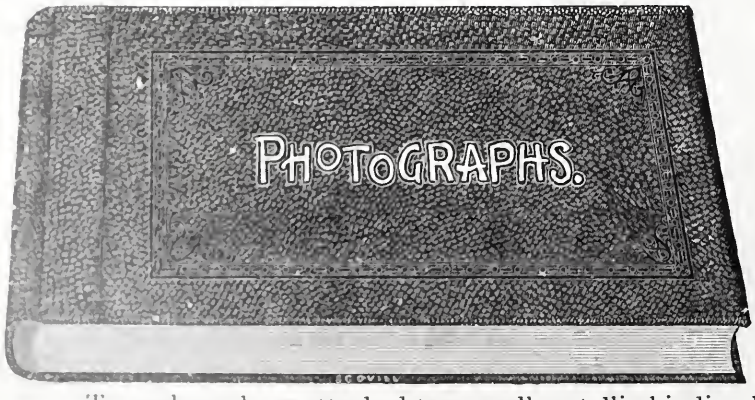
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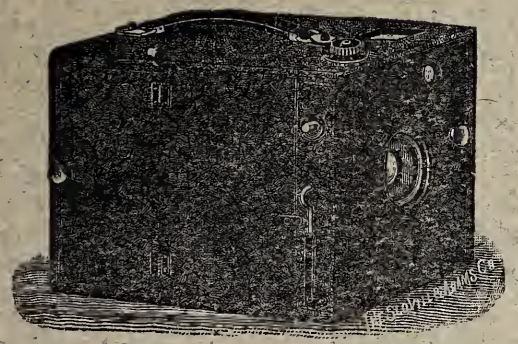
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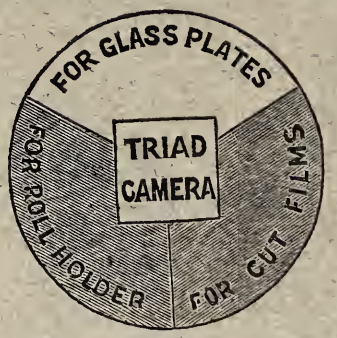
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Charles H. Miller, Photo. F. Gutekunst, Phila.

THE VILLAGE MILL.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, MARCH 20, 1891. No 496.

THE VILLAGE MILL.

WE take great pleasure in presenting our readers this week with a phototype reproduction of Mr. Charles H. Miller's pictorial photograph of the Village Mill. This is the picture which we commented upon under the Editorial Table some weeks ago, though from a smaller negative and not an orthochromatic plate. The effect is not so harmonious and soft as that obtained on the Carbutt orthochromatic plates of larger size, but the charming composition of the picture is the same. The reflections in this view are particularly beautiful, and the distance is also unusually well rendered. If anything, the negative was developed with a little too much contrast, making it somewhat hard ; a tendency which Mr. Gutekunst has been unable entirely to overcome in his reproduction, excellent though it is.

Mr. Miller will be remembered as the author of "The Old Highway," which embellished our magazine of the 31st of October. We shall hope to have other specimens of Mr. Miller's artistic photography to show our readers.

EDITORIAL NOTES.

MISS CATHARINE WEED BARNES and Dr. Nichol, of the *Beacon*, are having quite an animated discussion as to the new word "camerist," which Miss Barnes has considerably used of late. She ably defends her use of the word in a communication to the *Beacon* for March, which is too long to reprint in these columns. Dr. Nichol replies in an editorial note appended to Miss Barnes's letter. The whole makes interesting reading.

THE instructor of the Chautauqua School of Photography has sent to the International Amateur Photographic Exposition of Vienna a large collection of photographs, the work of students. They comprise genres and portraits, still life, landscapes and marine views, printed by various methods, and lantern slides.

The collection is highly interesting and well represents the different grades of a student's work—from the modest 4 x 5 made with the Waterbury A lens, negatives printed on blue paper, up to extremely fine 14 x 17 enlargements on platinum paper. Of exquisite beauty are the orthochromatic landscapes by K., of Boston, as well as the artistic genres of Miss T., of the same place; while Mrs. W., of Connecticut, presents work of the same excellence in her platinum enlargements. Miss C., of New York, is unrivalled in the execution of similar work. Poses and lighting of great effectiveness and character are shown, Mrs. M., of Pennsylvania; Mrs. P., of Connecticut, and C., of Illinois, have contributed various landscapes and instantaneous pictures of high merit. The little Waterbury hand camera is brought to the front by G., of this city, whose instantaneous photographs are of marvellous precision and detail.

Want of space prevents us from giving just mention to all the exhibits made, but we can not omit to speak of the lantern slides made on Carbutt plates by M., of Ohio, as they are of extremely fine qualities.

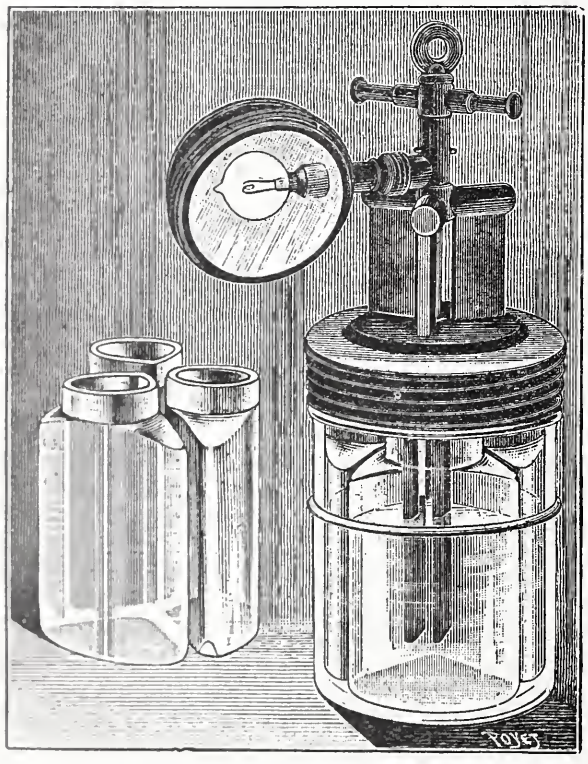
THE recrudescence of the photographs in natural colors mania promises after all to disappear with a little more promptitude than the experience of the last half century would have inclined any one to diagnose. We learn that the opinion of experts in Europe is by no means sanguine about this latest discovery. The process described being simplicity itself, the question naturally arises, "why are there not a multitude of examples already afloat?" As a matter of fact a plate was shown at the meeting of the French Academy, and it has also been seen by the newspaper reporters. The latter gentlemen, who are, presumably, ignorant of the scientific aspect of the subject, are quite enthusiastic about the beauty of the results, while the scientists, who do know something about such matters, speak very slightingly of the wonderful plate. The fact is not

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to be concealed that the so-called explanation is so little a real explanation that it is only the fact of the discovery having been discussed by such an august body as those before whom it was first brought—the members of the Paris Academy—that separates it from an ordinary scientific hoax. We calmly await what the future may have in store.

AN ELECTRIC LAMP FOR THE DEVELOPING ROOM.

A NEAT and convenient incandescent lamp, using electrical energy, has long been a desideratum, especially for the amateur photographer, doing away with smoke and heat. The accompanying cut shows a form recently constructed by M. Radiguet, of Paris.



The apparatus consists of three bichromate cells contained in a glass jar, which maintains a 5-volt lamp. The three elements are shown at one side, empty; they can easily be removed when necessary, cleaned, and refilled with the liquid. The zincs are so mounted that it is easy to change them for new ones. When exhausted a central support permits their ready submergence in the liquid, to set the system working, and their withdrawal when it is desired to terminate their operation.

The reflector, which contains the electric lamp, is movable on its horizontal axis, so that its rays can be thrown at any desired angle downward. It has a red glass, which can be readily replaced by another color if desired, or removed entirely, when the lamp is to be used for ordinary lighting.

The intensity of the light can be regulated by the greater or less depth to which the zincs are plunged into the liquid.

AN ARTIST'S CRITICISM.

A YEAR or so ago I took the liberty of making some criticisms on one of the reproductions in the TIMES. I made a drawing of a portion of the picture, showing what could be done with the subject either by using a lens of longer focus or by cutting the plate.

There are many subjects for which a wide angle lens is desirable, but I cannot believe that such subjects are often found in landscape.

I should like to offer a few suggestions as to the treatment of the subject reproduced in your last number, the "Road and River" view.

It seems to me that the plate has two very good subjects. If cut perpendicularly through the middle, we have on the right an interesting bit of road and on the left a more pictorial view of river and bank with picturesque birches.

If the plate is cut about three and a half inches from the left edge, and the camera had been swung round enough to have given an inch or so more of the left bank, I think we would find a still more interesting subject.

One more suggestion (that I know will not be approved by most amateur photographers): instead of using the smallest stop, I would have used the largest, thereby getting a little more atmosphere and losing a little detail. *R. M. Shurtleff.*

NOTES.

(From advance proofs sent by the author.)

PRESERVATION OF EIKONOGEN.

PROFESSOR W. K. BURTON'S paper on this subject in the last number of our journal (the Photographic Society of India), is most interesting and valuable, especially as he appears to have found a satisfactory solution of a problem on which I have been working more or less intermittently for some time past. I have not yet tried the method he recommends for washing the eikonogen crystals, and then preserving them in a 12 per cent. solution of sodium sulphite, but from my experience in the same direction, I have no doubt that it will answer well; the sulphite, however, must be good, and not alkaline. From recent notices in the European journals, it appears that the German manufacturers of eikonogen have succeeded in making a product that does not darken with heat and moisture, and it is said

that this is brought about by the addition of a bisulphite. The new product is a white powder, and is most probably thoroughly desiccated, so as to drive off the water of crystallization, to which is in great part attributable the darkening of the eikonogen crystals. In dry air, at a low temperature, they keep well, but in moist air, at a high temperature, as is the case here and in most tropical countries, they rapidly oxidize, darken and decompose. Some eikonogen of English manufacture lately received is in salmon or pink-granite colored crystals, and so far it shows no sign of discoloring; but whether it will stand the quickly approaching hot weather remains to be seen.

Although Professor Burton has succeeded with the treatment with alcohol I suggested in a former number of the journal, I find that it does not answer so well as I expected it would. Some crystals that had been cleaned with an acid solution of sodium sulphite, much in the same way as recommended by Professor Burton, remained white for a very long time in spirit of wine; but some fresh crystals put into absolute alcohol did not keep nearly so well, and the alcohol has extracted a good deal of a yellow substance. As Professor Burton remarks, in order to get the benefit of the treatment with alcohol, the spirit must be changed two or three times as it draws out and becomes weakened by the water of crystallization from the crystals. Precipitation of the eikonogen by acids has also been recommended as a means of keeping it in good order. I have tried several acids in a cursory way without quite satisfactory results. Phosphoric acid seemed to have a powerful action in keeping the solution free from darkening. Eikonogen is such a valuable developer and so pleasant to work with, that so satisfactory and simple a means of keeping it in good order in tropical climates as that recommended by Professor Burton is very welcome.

It may be noted, with reference to the use of the dark-colored washings of the eikonogen crystals as an ink, that, although it does make an admirable writing fluid, it is so easily washed off the paper that it is quite unsuitable for use as an ink to be used for any permanent records.

Thio-Carbamide Reversals.

Till lately I have not been able to make much progress in working out the direct positive process with thio-carbamides since the warm weather in September and October. However, on taking it up again in cooler weather, it was found that better results were more easily obtained, and I am glad to say that some new experiments seem to have brought me within reach of a practical method, though much has yet to be done to work it out and perfect it.

The principal difficulty all through has been to secure clear lights with good detail in the shadows. If the high-lights are clear the shadows are too deep, and if the shadows are clear and well detailed, the high-lights are liable to be overdone and unreversed. This is particularly the case in outdoor work, with sky and dark foreground. It was evident that something was wanted which would more completely reconvert the reduced silver in the more exposed parts into silver haloid salt, so that it might be dissolved out by the fixing agent. This I found could partly be secured by prolonging the development and allowing the reversing agent plenty of time to act and complete the reversal. The image thus produced may be too dense for printing purposes, but can be reduced, after fixing, with bromide or chloride of copper, or other suitable reducing agent, so as to gradually bring down the lights and details till they are sufficiently clear, though the operation has to be conducted with some care in order to prevent uneven reduction. A preliminary treatment of the plate with dilute hydrobromic acid was tried, but was not found better than the dilute nitric acid previously used with advantage.

In a leading article on the process which appeared in the *British Journal of Photography* for October 24th, attention was drawn to a curious compound of thio-carbamide and ammonium bromide, which was first described by Professor J. Emerson Reynolds in a paper published in the *Journal of the Chemical Society of London* for 1888, and to which he gave the name *tetrathiocarbamid ammoniumbromide*. This salt is quite easily prepared from thio-carbamide, and a trial of it has given me some very good results, better in many respects than those obtained with other thio-carbamides, and it acted in every way much better than the plain thio-carbamide, which I found rather unmanageable, from the exceedingly short exposures required, with only very minute quantities of the salt in the developer.

Professor Reynolds' instructions for preparing the new salt are to dissolve 1 part of ammonium bromide in as small a quantity of alcohol as possible, and add it to a nearly saturated boiling solution in alcohol of 304 parts of pure thio-carbamide. The boiling is continued for some time afterwards and then the flask is allowed to cool. On standing, the contents will be found to set into a mass at the bottom and may be re-dissolved in alcohol for use. I fink that about five drops of a strong alcoholic solution of this salt to the ounce of developer are

sufficient, but in some cases more may be added during the development.

It is important that the alcohol should be strong, because water decomposes the salt. In making up some of the salt a second time, a little water found its way into the flask, and the product seems to work quite differently to the proper compound salt.

It is remarkable with what very short exposures strong, vigorous positives can be obtained by the addition of a few drops of the saturated solution of this salt to the eikonogen developer. In a case where the ordinary exposure with pyro-development would have been from 60 to 90 seconds, 10 seconds was found to be more than sufficient, and the exposure was actually reduced to 2 seconds. This enormous shortening of exposure points to what may eventually be one of the most valuable applications of this curious process, and that is to astronomical photography. Already by the use of gelatine dry plates, the photographing of stars, nebulæ, and other heavenly bodies has been greatly facilitated and made to render thoroughly practical service, by the shortening of the long exposures necessary with even the most sensitive wet or dry collodion plates. By a still further large reduction in the time of exposure much more could, no doubt, be done, the long hours of patient attendance at the photo-telescope finder could be saved, and plates would be obtained which could at once be transferred to copper to be etched and printed. The new process may also prove useful in spectrum photography.

Professor Reynolds has found that thio-sinamine and phenyl-thio-carbamide do not form similar compound salts with ammonium bromide, but I have tried some other bromo compounds of these thio-carbamides, and find that a mixture of bromine and thio-sinamine promises well and gives rich, vigorous images with good, clear lights and well detailed shadows. I have prepared it by adding equal parts of bromine water and of a saturated solution of thio-sinamine. After a time the solution turns slightly opalescent and cloudy, probably from the pecipitation of sulphur. [Dr. G. McGowan has found that excess of bromine causes thio-carbamide to lose its sulphur and become converted into carbamide.—*Journ. Chem. Soc.*, Lond., 1887.]

I have lately been working with a form of developer which seems to act satisfactorily in the reversing process and is simple.

Eikonogen	5 grains or 1 gram
Sodium sulphite	5 grains or 1 gram
Lithium carbonate	5 grains or 1 gram
Water	1 ounce or 100 c. c.

The carbonate of lithia is kept in a saturated solution at about 1 per cent., and the other salts are dissolved in it as required. A paper on lithia and borax developers has long been under preparation, and should have appeared some time ago, but I hope to give it in an early number of the *Journal.*

As both thio-sinamine and thio-carbamide can quite easily be prepared, a few notes on their preparation, from experience, may be useful to any one wishing to try the method and unable to obtain them in commerce.

To make thio-sinamine. Procure some *essential* oil of mustard from the chemists; the *pure* mustard oil is better, but not easily procurable. The common oil contains resinous impurities which are very hard to separate out without redistillation, which is a troublesome process, though they do not seem to interfere with the reversals. Care must be taken in handling this oil, because it gives off unpleasant strong smelling vapors which are very irritating to the eyes. Having put some of the oil into a stoppered bottle, add to it four to six times its volume of strong solution of ammonia, and leave it for some hours till the oil has been converted into thio-sinamine, or taken up as much of the ammonia as it will. The conversion may be hastened by shaking the bottle from time to time, but if the oil is impure it seems better to allow the ammonia to act quietly and not take up the impurities. The solution is then poured into an open vessel, in order to allow the ammonia to evaporate. This must be done out of doors in an open place, because the smell is very penetrating and unpleasant.

The solution may, if necessary, then be filtered and evaporated down and left to crystallize. Recrystallization once or twice will be necessary if the impure oil has been used, and the crystals can be kept or dissolved as desired. The pure crystals are white and quite inodorous. The impure crystals may be yellowish and have a slight smell.

The preparation of thio-carbamide was first described by the discoverer, Professor J. E. Reynolds, in the *Journal of the Chemical Society of London* for 1869. A quantity of sulpho-cyanide of ammonium is thoroughly dried till it becomes white and almost powdery. When fairly dry it may be pounded up, and the drying completed. It is then put into a flask and heated in an oil bath *gradually* to about 170 degrees C. (338 degrees Fahr.) and kept at that temperature for about two hours, the temperature being regulated by a thermometer introduced into the flask. The sulpho-cyanide melts and gives off vapors, and is gradually transformed into thio-carbamide (sulpho-urea). After sufficient melting, the flask is allowed to cool down to boil-

ing point and a little hot water introduced; the hot solution is rapidly filtered and allowed to crystallize. The crystals always hold a large quantity of unconverted sulpho-cyanide, which may be removed by re-crystallization, and to a great extent by draining out, especially in a damp atmosphere, the thio-carbamide crystals being permanent, while the sulpho-cynade is diliquescent. Pure thio-carbamide gives no red color with a persalt of iron, but it is difficult to get rid of all traces of the sulpho-cyanide. The crystals take many different forms, partly depending on their purity and other conditions. Sometimes they are in very short fine needles, at others in long needles, or in long, glistening, fibrous, radiating wisps, like asbestos or spun glass; or, again, in flat fibrous prisms. The latter form seems to be the purest.

Besides the application to astronomical and spectrum photography already noticed, the new process, if it can be successfully worked in ordinary practice, might prove of use for portraiture in the studio, especially in dull weather or under other circumstances when shortening of exposure might be of advantage. It might also prove serviceable to itinerant photographers, who would thus be able to take transparent positive portraits which could easily be framed in the style of the sixpenny ferrotypes and delivered, if not on the spot, at any rate in the course of an hour or two, allowing time for washing after fixing. Another application might be to the penny-in-the-slot apparatus, though here again, time would be required for washing away the fixing agent. For reversed negatives and lantern slides it may also be found useful, as well as for a good deal of amateur photography, in which a single positive transparency might really be of more use and better worth keeping than a negative.

Wratten's "ordinary" plates still continue to give me the best results, and the fresher they are the better. There are, no doubt, however, other brands which might work with more certainty. The great difficulty is to get rid of the first-developed negative image, and, if obtainable, something is required which will develop up the positive image at once. From some of the results lately obtained with Professor Reynolds' compound tetrathio-carbamide, I believe that the process is capable of giving perfect transparencies with suitable plates, but in this country these are not easy to get, and one works under very great disadvantages and limitations, caused by want of leisure, unfavorable conditions of climate, and distance from commercial centers, so I hope that the process may be tried elsewhere with various makes of plates and the results reported.

J. Waterhouse.

THE MAY EXHIBITION.

It will be of interest, perhaps, to all amateurs and other photographers to know that arrangements are now in progress for a very large, select and important exhibition of photographs, including specimens of the best foreign work, to be held in New York, at the Fifth Avenue Art Galleries, between 34th and 35th Streets, May 25th to June 6th, under the auspices of the Society of Amateur Photographers of New York.

It will be the fourth of the joint series of exhibitions undertaken with the aid of the Photographic Society of Philadelphia and the Boston Camera Club.

The prospectus and entry forms have already been sent out, and the judges selected are Thomas Moran, Will H. Low, and Edward Bierstadt, men well known in the respective branches of art which they represent.

Medals are to be awarded instead of diplomas, the number being limited to twenty-five. Exhibitions of slides will be held four nights during each week, and in a separate room there will be an exhibit of new and novel apparatus

Foreign exhibitors may send pictures unmounted, which will be mounted and framed by the Committee.

Exhibits should be sent to the galleries by May 11th, to insure attention. The Committee prefers that the very choicest work be sent rather than a large quantity of ordinary pictures.

Exhibits are invited from all photographers, and when received will be carefully attended to. Entry forms will be sent on application, and all correspondence should be addressed to

Chairman of Committee of Arrangements,
113 West 38th Street, New York.

Do You Know a Simpler Developer? Water, 10 ounces; eikonogen, 20 grains; caustic potash, 20 grains. Expose the plate. Mix the developer and put the plate in it. Throw away the developer when one plate has been developed

William Herbert Rollins.

SEVERAL REASONS WHY EVERY PHOTOGRAPHER SHOULD PREPARE AN EXHIBIT FOR THE P. A. OF A. CONVENTION.

IT will give you a practical experience that will many times repay you for the outlay and time.

It will give you splendid "display pictures" for your studio.

It will show your patrons that you are fully up with the times, and you thereby strengthen the confidence that they have placed in you.

It will be the means of improving you in the art of photography; educate your patrons to distinguish the difference between high class work and the average kind palmed off on the public at large; and will naturally help you to get good living prices for your productions.

The awards for this year are numerous, and are well worth working for. The change in the rules made by the Executive Board at their meeting held in January last, allows no name to appear on any exhibit for competition ; each one is to receive a number by which the same is entered and is only known to the Executive Board, who have pledged themselves not to compete for any prizes. This we hope will do away with the cry of "favoritism," "one of the ring," etc. Each one has an equal chance, and work is the only thing that will count.

To those who have not competed heretofore I would urgently request to do so this year.

Think of the great benefit you would derive, coming home from the convention victorious, bringing a prize—be it what it may—gold, silver, bronze, or diploma. Your patrons will feel justly proud of you. Consequence, gain—artistically, financially.

To all such who have competed before and have been unfortunate in their attempts are just the ones who must come to the front. Do your best work and try again.

Those more fortunate ones of the past must not rest on their laurels. To stand still is going backwards.

If you do not wish to compete for a prize, send your work anyway and mark it "Not for Competition."

It will help to educate and elevate those possessing less experience, and furthermore will do us all a wonderful amount of good. All my schooling in photography has been derived from the conventions; and I venture to say ninety-nine out of every hundred photographers attending them have been benefited by the exchanging of ideas, which must leave its mark every time.

Any information pertaining to the art department will be cheerfully given by addressing

Yours, fraternally,

S. L. Stein,

1st Vice-President of the P. A. of A.

310 STATE STREET, MILWAUKEE, WIS.

SURREPTITIOUS PHOTOGRAPHY.

THE surreptitious photographic experience of "Z. F. G." in India, told in the TIMES of March 6th, recalls a similar one I met with in Chinatown, San Francisco, last summer.

We wanted in the worst way to photograph the interior of some of the many joss houses. Bribes to the extent of five dollars were offered and "declined with thanks." Finding at last that the privilege could not be bought, we decided to steal it. The camera was wrapped in a newspaper, and tied with string to give it the appearance of a bundle of "washee." A hole was left for the lens, covered, when not in service, by a flap of paper; a similar hidden doorway gave access to the focusing arrangement and the reel key. Next day we invaded the joss houses, judged the distance between the joss and the lens, focused and laid the camera upon a convenient table or desk with its glass eye looking at his Serene Highness (designed during a nightmare), and made inquiry of the guardian of the place as to the locality of a good laundry. Whi Hang recommended his brother as being "flirst class." A number of dwarfed trees on an outside balcony attracted us, and Whi, with visions of commission from his brother, explained to us that some of the trees were over a hundred years old. He was kept talking upon various subjects until we judged the negative was "cooked," and then we asked him if he would let us bring a photograph machine next day and take a picture of the joss for ten dollars. "No, no money. No pic. Joss no likee his pic. You takee pic, Joss no likee me. Joss makee me sick. Me die." But we got him all the same, and I guess Whi is living yet.

W. N. Jennings.

THE AMERICAN PHOTOGRAPHIC CONFERENCE.

AT a recent meeting of the Photographic Society of Chicago, * * * a communication from the council of the American Photographic Conference was brought before the members, whereupon Mr. Gayton A. Doug lass immediately moved that it be laid on the table, or, as reported by a contemporary, "immediately sat down upon it." Now, Mr. Douglass has a long record of truly liberal and broad views on all that pertains to the practice of photography, and especially for the encouragement and help of young photographers and

young photographic societies, and this action seemed to us so unlike him and so unwarranted by his past conduct, that we decided to look behind it for some reason that did not appear on the surface. We think we have found it, and if so, it is one in which we heartily sympathize, and which fully justifies his action. The communication was in the form of a circular, which we presume has been forwarded to all the clubs, associations, and societies in the country, the object being to solicit their co-operation with the conference. For this purpose a summary of the by-laws was given, setting forth the advantages to be derived from such co-operation or membership; and the council state that, with a view to give members a closer personal interest in the association, they intend to formulate a scheme by which, among other things, a general "purchasing agency" will be established, through which clubs, by consolidating their orders, will gain trade advantages We have no doubt that this is a portion of the proposed action of the conference to which Mr. G. A. Douglass takes exception; and whether it is or is not we have no hesitation in saying that if it be persevered in, or not at once disclaimed, it will do more harm to the conference than all the good done by all the other schemes of which we generally approve.

On page 253 of our last volume—the November issue—we devoted a leading article to the then proposed conference, congratulated the members of the Syracuse Camera Club, as the suggestors of the association, and welcomed the proposal with hearty commendation. Believing that we had a larger and longer experience of kindred institutions than most of the promoters, and probably an equal knowledge of human nature, we took the liberty of making a few suggestions as to certain things that should be adopted, and especially as to some that should be avoided. The most prominent of the "snags" that were in that article mentioned as certain to lead to utter failure was the introduction of "shop" or trade interests in any form, and what we said then we say again most emphatically.

If the conference is to be a success, and to benefit photography and photographers to the desired extent, it must gather into its ranks men and women from all classes, the one essential passport being that they love the art. Now, while the hope of saving a few cents on each dollar spent on material may attract a very few, and only a very few who happen to live near the local habitation of the association, the freight charge to any considerable distance more than counterbalancing any probable reduction in price, the fact that the association to a certain extent becomes a dealer and enters into competition with other dealers, will antagonize the stock houses, whose influence is perhaps very much greater than the members of the council suppose.

There are few amateurs who do not know how to get a discount of 10 per cent., and with that we think they should be satisfied. Many, however, are not, and as they occasionally see the price lists in some of the English journals, and by comparison find that they are required to pay from 50 to 100 per cent. more for everything they buy, they are apt to think the stock dealer makes rather too much of a good thing out of them. But the fault, and a serious fault it surely is, lies in another direction, and can only be remedied by the ballot-box.

We had great expectations from the American conference, as, if properly conducted and on the lines indicated in the circular issued by the council, and published in *The Beacon* in November, it would be nearly so, it would be a power for good; and therefore we regret all the more that the withering trade question has been allowed to creep in. But it is not yet too late. Let the council reconsider the matter, and at once choke off the obnoxious proposal, and we have no doubt that they will find their reward in a great success.—*The Beacon.*

Correspondence.

SENSIBLE.

To the Editor of the PHOTOGRAPHIC TIMES:

Dear Sir: I don't take any stock in a mechanic who does not take at least one mechanical paper, and so in regard to photography. An amateur or professional who does not read up will never amount to much, nor will he derive much profit or pleasure from the art. To my mind there is too much "pull the string" and "press the button" and "we do the rest" business about it these days—the most seductive and pleasant part being "the rest."

Here is a point you may make use of some time when appropriate. A lady one day said to my wife that my apparatus must have cost a great deal of money, etc., and didn't she think it a great waste, etc. My wife replied that probably it was a little expensive, but not near as much as the tobacco or other worse habits. Besides, it had this advantage—"It kept me home at nights." She always knew where I was, etc. See!

T. J B.

WARREN, Ohio, March 6th, 1891.

DR. R. E. VAN GIESON ON EMULSION MATTERS.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: The "Edition de Luxe" of "The Photographic Times Annual" is to hand. It is more magnificent than ever in get up, and, so far as I have had time yet to investigate, seems to be as good in matter as in appearance.

Of what I have already read one article in particular has interested me. This is one entitled "The Safe Limits for Rapid Emulsions." There are very few now who, like myself, still prefer to make their own plates rather than to buy them, and I am not at all sure that those few are not very foolish. Be that as it may, however, it is a pleasure to me to hear a word from one of them, and Dr. Van Gieson's communication to your "Annual" is particularly interesting to me, and not the less so that I cannot agree with all that he says in it.

My reason for writing the present communication is that Dr. Van Gieson mentions me more than once, and once I consider, somewhat misrepresents me; at least I suppose it must be me that he refers to. I don't think that it can be "the other Burton," my friend Mr. H. J. Burton, of the London Autotype Company, as I am not aware that he has written much about emulsions.

It is in the paragraph headed, or rather beginning—"the percentage of gelatine for cooking is very important," that there occurs the passage to which I take exception. It reads as follows: "Eder goes as high as 10 per cent., which seriously retards sensitiveness. Burton uses a fraction of a per cent., which is equally disastrous."

Now I cannot remember all that I wrote in the early days of my experimental work on emulsions. At that time

I was working almost constantly, and very enthusiastically at emulsions, and I publihsed many formula differing from each other, the only excuse for which must be that, at that time the amount that was *not* known about emulsions would have filled several very large books; that I thought I was reducing the amount a little, and that each formula was, in some respects, points, at least, an advance on any that I had published before. Although I cannot remember, and do not think it worth while to look the matter up, I have very little doubt that, in these days, I published formulas with less gelatine than 1 per cent. at the time of emulsification. I am sure, however, that I have not done so for several years. In fact the only formulas that I have published, in late years, have been in my "Modern Photography," and, although there have been some modifications in details in succeeding editions, as was indicated by my further experience the quantity of gelatine recommended has been above 1 percent. for years.

I mention this as showing that I have not, for years back, recommended "a fraction of a per cent." of gelatine in emulsions; but, at the same time, I totally deny that the use of a "fraction of a per cent." of gelatine is of necessity "disastrous." The relation that ought to be observed is not so much that between the gelatine, and the total quantity of emulsion, as between the gelatine and the quantity of bromide of silver emulsified, but even this latter relation is not a direct one. Assuming bromide of silver to remain constant, the greater the quantity of water (the more dilute, that is to say, the emulsion) the *less* is the quantity of gelatine necessary to insure emulsification in a fine state of division, and to allow ripening without any tendency to fog. For this reason the percentage of gelatine may be reduced enormously, as the quantity of water increases with relation to the bromide of silver, and, to take an example, when the bromide of silver is as small as about 5 per cent. of the total water, a very small part of 1 per cent of gelatine is sufficient for "safety."

All this I noticed some eight or ten years ago, and I also came to the conclusion that nothing so much influenced the quickness with which sensitiveness of an emulsion could be got as the quantity of water in relation to the bromide of silver.

I found that there were also certain advantages in keeping the quantity of water as low as might be, and for these reasons I have not for years recommended in emulsification in presence of ammonia more than ten times as much water as silver nitrate which, as mentioned by Dr. Van Gieson, is very nearly equivalent to bromide of silver. This keeping the gelatine constant makes it considerably over 1 per cent. of the whole solution in formulas that I have given since I observed the great influence of the mere concentration or dilution of the emulsion with water.

In connection with "concentration of the emulsion," I would remark that a much higher degree of concentration is permissible if ammonia be present at the time of emulsifications than if it be not present. Thus I find it quite possible to safely emulsify more than 12 per cent. of bromide of silver in the presence of ammonia; only about 8 per cent. in a neutral or slightly acid solution.

I agree with Dr. Van Gieson in preferring something between the pure boiling method and the pure "ammonia method," but, instead of boiling first as he recommends, and afterwards digesting with ammonia, I prefer to digest from the beginning with ammonia, but using a considerably less quantity than would be convert the whole of the silver nitrate to ammonia nitrate, using a higher temperature than would be permissible where all the silver nitrate converted. This higher temperature I consider quite "safe." The formula that I am still using is given in "Modern Photography," ninth edition, page 181, under the heading "The Ammonia method of Emulsion making."

A distinct objection that I have to Dr. Van Gieson's method of adding a measured quantity of ammonia to an emulsion is that ammonia is, even if the greatest care be taken, so variable in its strength. Even supposing that ammonia is of a definite strength when bought, the last in the bottle is much weaker than the first, and the mere pouring of ammonia from the bottle to a measuring glass will weaken it to a not inconsiderable extent, and to an extent that is not definite, depending on the temperature and on other circumstances.

Here I have gone, in detail, into several of the matters wherein I differ from Dr. Van Gieson, but I would not have either him or your readers think that I do not consider his communication a very valuable one, for I do and would, indeed, be glad to see more communications of the like kind. I have not the good fortune to be acquainted with Dr. Van Gieson, but should be very glad to receive through the editors a sample of plates made according to his instructions, with a formula for the developer that he recommends, in return for which I will have pleasure in sending plates made by my own formula

Your truly,

W. K. Burton.

TOKIO, JAPAN, February 11, 1891.

Notes and News.

"Let me say," writes Mr. H. Bertran Pearson, of Boston, in regard to his picture entitled "Hickman Creek," which appeared in THE PHOTOGRAPHIC TIMES of February 13th, "I am very much pleased with the way that the photograph has been reproduced by the Photogravure Co., which certainly does credit to their skill."

The Syracuse Camera Club will hold its exhibition of lantern slides at the Opera House in that city, Monday evening, March 23d.

"L'Amateur Photographe" appears in a new cover, for its seventh volume. Well conceived sketches of the various phases that photography covers—landscapes, architecture, animals, marines—all are introduced with happy results.

The Tucker Building in Buffalo, very narrowly escaped destruction by fire Tuesday, March 10th. The adjoining building was on fire and burned to the cellar inside of fifteen minutes. The Tucker Building was on fire several times, but each time was rapidly extinguished. There was some loss sustained by smoke and water, but everything was fully insured. "We have now about 30 inches of water in the cellar," writes Mr. Tucker, of Tucker & Butts, the extensive photographic merchants, under date of March 11th. "We are doing business in a light way, but shall be going with full force to-morrow. We are very thankful to get off as we are. It was a close call, and most everybody thought there was no hope for the Tucker Building."

W. S. Bell & Co., the enterprising dealers in photographic materials of Pittsburg, Pa., were burned out Wednesday night, March 11th, by the destructive fire which prevailed in that city on that night. As yet no particulars of the loss have been received. We trust that Mr. Bell will speadily be able to resume business.

Photographs Framed and Hung have long held first place in the affections of women who love to add pretty touches to the adornment of their rooms. But the setting for pictures is more or less costly, and oftentimes charming prints are put aside for want of means to mount them properly. Here, then, is the way one clever woman contrived to decorate her walls at a minimum of expense. She took seven large photographs, say 9 x 6 inches, and, drilling tiny holes through the lower edges of the top card and upper edges of the one next, connected them with loops and bows of handsome but narrow ribbon. This process was repeated until all seven were fastened together, when with wider ribbon the long line of pictures was suspended against the wood-work of the folding-doors. Impromptu frames of thin sheets of celluloid are suitable for little vignette heads, that are so small six or eight may be artistically grouped together.—*The Illustrated American.*

Phillips Brooks shuns the photographer. It is told of him that some of his pretty parishioners represented to him that if he would only contribute some photographs of himself to be sold at a church fair it would be just the thing. "A very laudable work, ladies," he said, blandly, "and how much money do you suppose you could make at the fair selling my photograph!" "Oh," said the young ladies, readily, "we could make as much, we think, as $50." They weren't prepared for the reply. "Very well," said the eminent divine, turning about and seating himself at his desk, "I can save you trouble and myself annoyance in this way," and he handed over a check for $50.

Portrait Painters' Aid.—"The portrait painter of today," said Mr. Dabbs, the photographer, "has a much better time than his predecessors had before the invention and perfection of photography. The artist who painted a portrait, say fifty years ago, had to make it from nature entirely—a series of sittings were necessary. Now this is not necessary, however desirable it may be, if he can obtain a good photograph of the subject. He can get the little points of color, expression, dress or special features required by the client in a sitting or two. For form, pose and expression to a large extent the artist can rely upon a photograph, and it is my opinion that the result will be usually found more satisfactory than under the old methods, when the artist had only his own powers to depend upon. Beyond all question photography has enabled the portrait painters of modest talents to rival the geniuses of former times."—*Pittsburgh Dispatch.*

Some Portraits of Authors.—Apropos of writers it is curious to hear the discussions about them when their pictures have been seen. Mr. Haggard is extremely picturesque-looking, and a picture of him with an orchid in his buttonhole is that of a man earnest, bright, imaginative, and agreeable. Two other pictures furnish curious contrasts. They are those of Jerome K. Jerome and Rudyard Kipling. One thing that makes them look alike for a second is that each man wears a mustache and eyeglasses, and yet when you look into the faces closely you discover how absolutely dissimilar they are. Jerome's face is that of a man who is lovable, and who would be loved by everybody around him. There is a keen sense of humor and a bit of a pathetic look, that reminds one, even when he is funniest, how a little pathos will creep in. He looks like a man who would be delightful to live with, who would have good and gentle thoughts of all people, and who would do his best wherever he might be.—*Brooklyn Standard Eagle.*

C. W. Carland, the enterprising dealer in photographic goods, has removed to the large and convenient store at 558 Broadway, Albany, N. Y.

Suspended.—A postal from the Globe Publishing Company states that the publication of the *Photographic Globe* will henceforth be suspended.

The Alliance Between Photography and Printing finds enlargement continually. To Adolph Growoll, managing editor of the *Publishers' Weekly*, is due a novel use of the camera. He reproduces a book—not by photographing printed pages, but from paragraphs suitably rearranged. Each number of the *Weekly* gives a list of the week's new books. At the year's end an annual catalogue presents the titles in alphabetical order. Mr. Growoll clips them out from the *Weekly* and pastes them on sheets of paper the size of the Annual's page. Photo-lithographed, his sheets give him plates for the press at something less than half the cost of resetting the matter in type.—*N. Y. Sun.*

The New Working Rooms of the Lynn Camera Club will be a model of convenience. The developing room is placed directly under the present one, and obtains its light for the large sink from electric lamps in the banquet room; in addition to the large sink which was used in the old room, there are two small sinks placed near together, with a partition between so as to form individual stalls, "à la Australian ballot system."

Lockers are placed both inside and outside the developing room for the use of members. An enlarging and reducing room is built at the back of the present building, which will be used for making bromide enlargements, lantern slides, etc. Here will be placed the enlarging camera, using an overhead light, the paper being laid flat on the table and thus much more easily handled, and also giving the finest light that it is possible to obtain.

There is a window in the north-east corner that will be used for the reducing camera in making lantern slides, and provision has also been made for fitting up and enlarging apparatus, using the electric arc-light, thus allowing enlargements to be made at night. Both the developing room and the enlarging room are entered by passageways that turn several times at right angles, and the sides of same are covered with a light absorbing paint, thus completely isolating the rooms from actinic light and at the same time gives good ventilation. The present dark room will be removed from the upper floor as soon as the new one is ready, and this will give the club an exhibition hall 30 x 40 feet, and one third more seating room. This move has been found necessary on account of the large attendance at the entertainments given by the club this season."

Demand for Views of the Sherman Procession.—For the last week amateur photographers have been busy in developing the pictures taken of the Sherman funeral procession. One rider in the march counted 400 cameras along Fifth Avenue above Twenty-third Street. Many of the pictures have turned out well and some excellent mementos of the day secured. Not a few of those who took part in the funeral march are anxious to get copies of the pictures, and the amateurs have supplied many of their friends.—*New York Times.*

Miss Balfour's Irish Photographs.—Miss Balfour, who was her brother's companion during his recent visit to Ireland, brought home a series of photographs of places and people taken during the tour. Miss Balfour used to ride, and the apparatus, in charge of a skilled photographer, was carried by a second pony. As soon as a subject was found, a halt was called and the picture taken. Among the subjects are cabins, children, Mr. Balfour and his party on their outside car, Mr. Balfour examining potatoes in a field, and addressing a picturesque group of the peasants who so often assembled to bid him welcome. Some of the most interesting of the series of pictures will probably be made use of for lantern slides to be used at lectures and public meetings.—*From the Lady's Pictorial.*

Stanley's Old Photograph.—When Henry M. Stanley was a poor unknown newspaper reporter in St. Louis, in 1866, he boarded with Mrs. Charles Faus, who then kept a boarding house in Broadway and Washington street. Mrs. Faus took more than ordinary interest in the young journalist, and showed him attention and kindnesses that won his highest esteem and respect. On leaving St. Louis for the west the same year he had photographs taken at Omaha and sent one to Mrs. Faus. This picture Mrs. Faus has ever carefully preserved, and it is now the only one in existence of Stanley at that age. When the Stanleys were here last month Mrs. Stanley heard of the photograph and expressed a great desire to secure it. Mrs. Faus was too indisposed to call on the now renowned explorer and his family, but sent the photograph to Mrs. Stanley, with the request, however, that it be returned. Mrs. Stanley was delighted with the picture, and offered every inducement possible to become the owner of it, without avail.—*St. Louis Republic.*

Photographs in Business.—"There is no source of annoyance so great to a traveling man," remarked one of the fraternity the other evening, "as the necessity to which we are frequently put of securing men to identify us when we desire to cash drafts or money orders. We are all of us annoyed and embarrassed at such times, and I never saw any scheme to do away with the difficulty until one day last week in Des Moines, Ia.

"After dinner a friend of mine said to me: 'Come down to the bank a minute. I want to show you something.'

"We went down, and he remarked to the paying teller:

"'Draft here for me?'

"'Yes, sir,' responded the banker.

"'Photograph accompanying it?'

"'Yes, sir.'

"'Please look at it and see if I am the right man.'

"The clerk did so. He was the man, and a moment later he had the money, and had been subject to no trouble or mortification at all.

"He told me as we went out that he immediately returns the photograph to his house. They always inclose it with drafts. It is the cleverest scheme I ever saw."—*Grocer and Manufacturer.*

Photographic Societies.

THE HOBOKEN CAMERA CLUB.

THIS club held its annual meeting, March 3, in its new building, No. 380 Park Avenue, Hoboken, N. J., at which the following officers were elected for the coming year: President, Alfred J. Thomas; Vice-President, George E. Mott; Recording Secretary, George Steljes; Corresponding Secretary, F. Child; Treasurer, C. L. A. Beckers; Custodian, William Allen; House Committee—F. A. Muench, F. Trickel.

Mr. Thomas was unanimously re-elected, and the club is ably represented by him in the Photographic Conference.

All things point to a grand future for the club, and the year so auspiciously begun is already filled with social and photographic engagements that tend to make the club the most popular in the city. An informal reception and house-warming occurred on the 11th of March, the third anniversary will occur on the 22d; a grand fair, lasting six days, in April, besides the regular monthly lantern slide entertainments. The new home of the club is fitted with every modern convenience for photographic and social pleasures—of which more anon.

PHOTOGRAPHIC SECTION OF THE MANHATTAN CHAPTER, AGASSIZ ASSOCIATION.

THE first exhibition of the Section was held Wednesday, Thursday, and Friday, March 4th, 5th, and 6th, and was a success in every sense of the word.

About two hundred and seventy-five prints were exhibited, representing the work of seven members of the Section.

Diplomas were awarded to Mr. H. Bucher, Jr., for the best landscape, one of a series of views of "College Point Suburbs;" to Mr. H. T. Rowley, for the second best landscape, "A Shady Path;" to Mr. F. Albers, for the best portrait, entitled "Sorting Cigars;" to Mr. W. T. Demarest, for the best group, "A Study in Posing;" and to Mr. H. T. Rowley, for the best exhibit as a whole. The judges were Messrs. L. W. Seavey, A. T. Schauffler, and E. W. Newcomb.

Mr. Rowley exhibited twenty-three prints, notable among which were several Central Park views: "The Terrace," "Harlem Mere," "Boat House," "Bridge on Pond," "Dairy," "Old Powder House," and "A Quiet Nook." He also exhibited an interesting picture of the "Old Church at Sleepy Hollow," familiar to all readers of Washington Irving's legend.

Mr. Albers had twenty-five prints on exhibition, the best being the prize portrait. Views of "Fort Columbus, Governor's Island," and "An Ancient Homestead" were also excellent.

One of the most pleasing exhibits was that of Mr. Bucher. Thirty-six Swiss views, among which were

"The Jungfrau," "Alpine Road, Axenstrasse," "The Devil's Bridge," "Swiss Chalet," and "The Falls of the Rhine," being especially interesting. Mr. Bucher also exhibited seven "Studies in Posing," flash-light pictures of a young lady in Swiss costume, and seven views of "College Point Suburbs," the latter being unquestionably the best views in his exhibit.

Mr. Stahl showed eighteen miscellaneous views, those of most merit being the colossal "Elephant" and the "Iron Pier," at Coney Island.

Among the sixty-six prints exhibited by Mr. Miller was an excellent series of Central Park views, notable among which were "The Music Pavilion," "Over the Pond," "Panel Terrace Stairs," "The Mall," "Entrance to the Cave," "The Pool," and "Archway under the Drive." Several views in Bronx Park by the same gentleman were also interesting, as was a group entitled "Carpenters," showing three children, with carpenters' tools, and evidently highly delighted at the prospect of having their "picture took."

Most of the forty-nine prints exhibited by Mr. Putnam were from negatives made in a hand camera, those deserving special mention being "On the Lake," "Hay-rake," "Oxteam," and "Sawing Wood." An excellent portrait of a gentleman had a place in Mr. Putnam's exhibit, and many visitors thought it was equally as good as the one that took the diploma in that class.

Mr. Demarest exhibited forty-six prints, those most enjoyed by visitors being "Halma," a flash-light group; "A Shady Porch," "Artist's Paradise," "The Bronx," "Dam on the Bronx," "Cranstons," "Barn Yard," "Autumn," "The Rapids," and "A Stony Boundary." Mr. Demarest also exhibited a series of lantern-slides from hand camera negatives.

So much interest was taken in the exhibition that it is probable that the Section will hold one annually hereafter. A lantern exhibition is also designed for next fall.

THE CALIFORNIA CAMERA CLUB.

The first annual meeting of the California Camera Club was held in the new club rooms, Academy of Sciences Building, 819 Market Street, Tuesday evening, March 3, 1891, President Reed in the chair; Secretary Andrews at Secretary's desk.

For the first time in the history of the club every active member responded to roll call. President Reed rendered his annual report, which was replete with suggestions to the club to purchase a complete portrait outfit, the arranging of a series of field days, and a legitimate expenditure of the club's funds so as to provide the new rooms with every convenience that will offer the experimental amateur photographer facilities for pursuing his work.

Secretary Andrews' report elicited the information that the club membership was 177, with but six resignations and two deaths during the year; applications for membership which are now awaiting the action of the new Board, 48. Money collected during the year, $1,846.95; expended, $1,344.75; leaving a balance of $499.20 in the treasury, with nearly $1,000 still owing the club.

The club gave three public demonstrations during the year, and several public exhibitions. The cost of these exhibitions averaged $100 apiece.

The election of the Board of Directors for the ensuing year was next in order and resulted as follows: President, Geo. W. Reed (re-elected); First Vice-President, H. B. Hosmer (re elected); Second Vice-President, E. P. Gray; Secretary, T. P. Andrews (re-elected); Treasurer, E. J. Molera (re-elected); Corresponding Secretary, E. L. Gifford; Librarian, H. C. Tibbitts; Theodore C. Marceau (re-elected), C. J. Wetmore (re-elected), B. C. Owens, A. G. McFarland.

"A Dry Emulsion, Sensitometer No. 62," a poetical satire upon the club's prominent members, was shown upon the screen. Mr. Gifford, the author of this pleasing joke, read the poem. This proved a huge and pleasant surprise to the members and their friends present, and was highly appreciated. Following this a batch of miscellaneous lantern slides from various members were also shown on the screen. Then the club members were invited to partake of a sumptuous repast with the compliments of the new Board of Directors.

The meeting then resolved itself into a smoking concert, during which the club were highly entertained by Mr. West, the famous banjo soloist, with an original song, dedicated to the Camera Club; by Mr. Hirsch, the popular zither soloist, and by Mr. Bornemann and his little tin whistle. The entertainment was highly pleasing, and it is proposed by the club to hold a smoking concert once in two months. Mr. W. B. Lee, of the Boston Camera Club, and Mr. E. P. Gray, of the Amateur Photographic Society, New York, participated in the proceedings.

T. P. Andrews,
Secretary.

The Editorial Table.

Geschichte der Photographie, von C. Schiendle: Wien. A. Hartleben.

In this voluminous work of nearly 400 pages the author lays before his readers a summary of the history of photography in all its details. Like Eder he records the ancient observations of light action and light sensitive bodies down to the accomplishments of the present day.

With Eder he acknowledges Schultze, the German scientist, as the father of the art-science, because he was the first to obtain perishable light impression upon a silver compound.

In regard to the light sensitiveness of chromates and their combinations, he justly mentions Vauguelin as the first observer of this interesting phenomenon.

What he tells of Baccarius, Scheele, Sennebier, Ritter, Herschel, and a host of others, is already too well known to require special mention, although it appears in several instances that dates are not historically correct, and he makes claims at variance with the statements of other writers.

The efforts and accomplishments of Daguerre and the Niépces are extensively spoken of, and a full share of credit is given to Fox Talbot, although it is hinted that Faraday was the man who led Fox Talbot to the completing of his callotype process.

Le Gray's and Archer's services in introducing and improving the collodion process are duly mentioned.

More recent methods, photo-chemical and photo-mechanical printing, are treated in detail; while to emulsion processes, scientific researches, and the artistic part of photography a large space and much laborious attention

have been devoted, while photogrammetry and the reproduction of natural colors are duly considered.

The author assumes throughout the book a peculiarly independent position, and being himself a scientific and practical man, he will probably be able to hold his own, if he be assailed, which is very likely to be the case.

A group of portraits representing the founders of photography embellishes the book. The most prominent places in the group are occupied by the portraits of Petzval and N. Niépce, while those of Daguerre and Talbot are found in subordinate positions.

GESCHICHTE DER PHOTOCHEMIE UND PHOTOGRAPHIE. Von Dr. Josef Maria Eder. Second Edition. Wilhelm Knapp, Halle a/S.

This most authentic and historically correct book is now completed, and forms the first volume of the author's "Ausfuhrliches Handbuch der Photographie." The first parts of it have been duly noticed in these columns, and it remains merely to consider what the writer tells us of events and the savants of our own time, the accomplishments of Abney, Lea, Becquerel, Pizzighelli, Monkhoven and others—subjects which he treats with the same ability which characterizes the other part of the work. Very beautiful photogravure portraits of Nicephore Niépce, Daguerre, Fox Talbot and Dr. H. Schultze are among its embellishments.

"Photography as a Business," by H. P. Robinson. Bradford: Percy Lund & Co. The series of articles which have recently been running in the "Practical Photographer," are here collected in convenient form, and compose No. 3 of the Practical Photographer Series. The table of contents indicates the scope of the little book, which is as follows: Beginning Business: by Purchase; The Studio and Workrooms; The Reception Room; Appointments; Prices; Advertising; Obtaining Business; The Management of the Sitter; Showing Photographs; Selling the Business. The little book is embellished with "A Study" (in the use of elaborate accessories), by Fritz Leickhart, of Vienna, The type is clear and the paper good. It is neatly bound in red cloth.

From Mr. C. E. Ashburner, of Richmond, Va., comes an instantaneous 4 x 5 silver print of the steamship "Clan Muday" during a heavy gale in the Bay of Biscay. The picture, taken from the forecastle, shows the quarter-deck, part of amidships and rigging of the steamer ploughing under close-reefed sails through the tumultuous waters of the bay. It is an interesting and skillfully made photograph, reflecting much credit on the amateur.

No. 8 of volume 4 of Schumann's *Southern Photographic Bulletin* has come to our table, filled as usual with matter of interest to the professional photographer. It is edited and published by Theodore Schumann, of Atlanta, Ga.

Record of Photographic Patents.

447,902. Camera Shutter. Louis Prosch, Jr., Brooklyn, N. Y.

Heredity.—Doctor: "Young man, this is grave, and appears to be a case of hereditary disease! Was not your father a hypochondriac?"

Patient: "No, sir, he was a photographer."

Doctor: "No wonder!"—*The Lunatic Record.*

Queries and Answers.

43 "PHOTO" inquires: "How can commercial work, such as furniture, etc., be mounted on albumen paper and have it retain the albumen?"

43 *Answer.*—If we understand the query correctly, you have attempted to mount albumen prints on the back of albumen paper, and, by moistening it, have found that the film washes off. That is very natural. When albumen paper is floated on the sensitizing bath the silver coagulates the film and hardens it, but plain albumen paper has the albumen merely in a dry state, and as such is soluble. To retain the gloss, the albumen must be made insoluble, or be coagulated, which can be done by soaking the paper in an alcoholic solution of mercury bichloride, and washing it in water.

You will find albumen paper a very costly mount, especially for commercial work. Why not take instead of it the glossy crayon paper used by lithographers?

44 H. S. asks: "1. Is it correct to focus with a small opening, or should the largest opening be used, and then on that focus stopped down with a smaller over opening? 2. In my detective box I use a 4 x 5 $\frac{f}{8}$ optimus double lens. This lens in time exposure will give a good full plate picture. But as the lens works very quick, I make instantaneous exposures. Then, however, the views are cut off at the corners, giving a circular picture. How could this be remedied? Would the lens work just as quick with a smaller opening, say, $\frac{f}{11}$, and then give a full plate picture? 3. Which is the very best and brightest oil lamp for magic lantern in the market? I use a duplex burner, but same does not give enough light. Are circular burners better? 3. What is the correct time of exposure—say, on a light clear day—for a Waterbury 6½ x 8½ single lens, say, full opening and stopped down?"

44 *Answer.*—1. Focus should be taken with a large aperture, because the image appears brighter on the ground glass screen than when the lens is considerably stopped down. 2. The diaphragm, or stop, has no influence upon the size of the image. Some operators are under the impression that a small stop makes the image smaller, but that is not true. It is almost impossible to believe your observations are well founded, unless the diaphragm slit in the barrel is out of place, an error that can hardly occur with the *optimus*. Let us see your apparatus: perhaps we can detect where the fault is. The time of exposure is inversely proportioned to the square of the diameter of the stop. 3. Flat burners are preferable. 4. Single achromatic lenses, like those of the Waterbury series, can not be worked without a stop. The largest aperture for the Waterbury is $\frac{f}{15}$. With a 6½ x 8½ stop $\frac{f}{15}$, a Carbutt B plate, and an energetic developer, an exposure of one second or less will be found sufficient under the circumstances stated. For more rapid plates the lens must be stopped down.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

W. I. LINCOLN ADAMS, Editor.

Issued every Friday.
Monthly (unillustrated) edition issued on the last Friday of the month.

SUBSCRIPTION RATES.

Weekly (illustrated) edition, for one year.....$5 00
" " " " six months..... 2 50
" " " one month's trial..... 50
Monthly (unillustrated) edition, for one year..... 3 00
Single copy, Weekly, 15 cents; Monthly, 25 cents.
The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.
On Foreign Subscriptions $1 00 is added to pay postage.
Remit by Express Money Order, Draft, P. O. Order, or Registered Letter.
Subscriptions to THE PHOTOGRAPHIC TIMES received by all dealers in photographic materials in this and foreign countries, also by the American News Co. and all its branches.

SPECIAL OFFER.

Three Months (Fifteen issues, including the special Holiday Number) for One Dollar.

WITH THE BEGINNING OF THE NEW YEAR many photographers contemplate subscribing to a photographic magazine, and sometimes are in doubt as to which one they will choose.

TO SUCH we offer to send THE PHOTOGRAPHIC TIMES for three months, for one dollar, in order that they may thus have an opportunity of judging of its value.

WE CLAIM to be the representative organ of the photographic fraternity in this country, as well as a progressive magazine for amateur photographers.

WE WANT every photographer in this country to receive THE PHOTOGRAPHIC TIMES, and therefore make this special offer to those who as yet are unfamiliar with it.

IN ADDITION to the three months' trial subscription for one dollar, we will send the special HOLIDAY NUMBER and the succeeding issue in December if the subscription is sent in previous to December 19th.

The regular price for the HOLIDAY NUMBER is..... $0 25
14 ordinary issues at 15 cents each..... 2 10

If bought separately these 15 numbers would therefore cost..... $2 35

We send them all, as a trial subscription, to new addresses, for One Dollar.

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Size of advertising pages, 6½x9¼ inches; outside size, 8½x11¾ inches.
One page, each insertion, in either Weekly or Monthly edition.....$20 00
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Quarter page, per insertion..... 5 00
Eighth " " " 2 50
Business Notices, not displayed, per line..... 20
Discount for term contracts.

Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.

All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

When buying photographic cameras, be sure, if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

CYCLOPEDIC INDEX TO THE PHOTOGRAPHIC TIMES ANNUAL.

"IT IS JUST THE THING—only one objection—the price is too low for so valuable a work."—J. R. SWAIN, Dana, Ind.

"IT IS BRIMFUL of interesting and instructive information."—J. C. HEMMENT, Brooklyn, L. I.

"IT IS CERTAINLY quite a valuable addition to the 'Annual.'"—R. E. M. BAIN, St. Louis.

"IT IS A SURPRISE to me that so much information is comprised in so small a space. *Multum in parvo.*"
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"IT IS NO EXAGGERATION to say that the index is almost as valuable as the 'Annual' itself."—*The Illustrated Pacific State.*

"IT CONTAINS much that is of greatest interest."—*The San Francisco Call.*

"IT WILL PROVE useful to all those who possess that volume ('The American Annual of Photography and Photographic Times Almanac' for 1891.)"—*The Photographic Bulletin.*

"WILL BE FOUND INVALUABLE to readers of 'The Annual.'"—*The Photographic Art Journal.*

"IS IS VERY COMPLETE."—*The Optical Magic Lantern.*

Studio Changes.

Cincinnati, O. Mr. Edward Sifert succeeds Emminger & Sifert.

Lockport, N. Y. Mrs. Sarah B. Smith's gallery has been sold.

Business Notices.

FOR SALE—Fine Photograph Gallery. For further particulars address
V. W. GRUMMAN, Toronto, Ohio.

TO LET—Old-established Photograph Gallery in Newark, N. J. LOUIS Y. WISS, 755 Broad Street, Newark, New Jersey.

WANTED—Detective Camera, 4x5 preferred. Must be in good condition and cheap. State make and lens.
ROBERT JENNINGS, Lincoln, Ill.

SIX OF ADT'S large improved Metallic Retouching Pencils for $1. Ask your dealer for them, or send direct to Adt & Brother, Waterbury, Conn.

THREE MEN, practical photographers, wanted to introduce and demonstrate Omega Paper to galleries. Must be willing to leave the city. Address, with terms, etc.,
C. C. HOPKINS, 529 Fulton Street, Brooklyn.

FOR SALE—One Woodward Improved Solar Camera for direct printing—15-inch condenser, printing 29 x 36—in good condition. Price, $125 boxed. Address
WOODARD, CLARKE & CO., Portland, Ore.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

WANTED—Choice stereoscopic negatives of all places of interest in all parts of the world. Address

G., Care of JOHN TENNANT,
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PHOTOGRAPHIC BROKERAGE.—C. M. Brockway would inform all wanting selected photo. goods that he will continue to give his best attention to all orders mailed to his new address—No. 33 Worth Street, New York City.

NOW READY, MORAN'S BARGAIN LIST No. 37, fourteen pages. Look out for it. Send your address and secure a copy. R. H. MORAN,
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"CALIFORNIA."—Gallery for sale. First-class, thoroughly equipped. Best location in the city of Santa Cruz. Population 8,000. Only one other Portrait Gallery. Will sell cheap, on account of health. Address F. H. H., care Sam C. Partridge, Photo Supplies, 226 Bush Street San Francisco.

WANTED.—A second-hand 12 x 15 rapid rectilinear Dallmeyer lens, in good condition. Address, stating lowest cash price, J. C. LONG,
522 Summer Avenue, Newark, N. J.

WANTED TO BUY.—A good gallery in live town. Will not pay more than $800 for same, and will pay one-half cash. Who will offer me the best bargain?
Address S. PHOTO,
302 W. Sixth Street, Sioux City, Iowa.

FOR SALE.—One pair Queen's dissolv. oxyhydrogen lantern, 4½ inch in condensers and half size portrait lenses, $100. Two 30 x 40 gas bags, each $8. Also lantern slides. One 10 inch Entriken burnisher, $8. One combination fire-place book-case, $6. One 10 x 14 inch bed-plate press, $10. One set stairs, $6.
Address H. W. IMMKE,
Princeton, Illinois.

CHAS. T. FELLOWS, Pres. F. A. GENTH, JR., Sec'y and Treas.

The Fellows Photographic Co.,
1024 ARCH STREET, PHILADELHIA.
Freight Entrance, - - - - - - - 1023 Cuthbert Street.

PHOTOGRAPHING FOR THE TRADE,
COMMERCIAL PHOTOGRAPHY,
Including photographs of Machinery, Buildings, Interiors, Articles of Commerce, etc.

LANTERN SLIDES,
STEREOSCOPIC VIEWS, Etc.,
AMATEUR WORK,
Such as Developing, Printing, etc.

RETOUCHING,
BROMIDE ENLARGING, Etc., Etc.,
Are all branches to which special attention is paid, and for the requirements of which no expense has been spared in order to perfectly equip our establishment.

☞ Write for Price-List. Mention this Journal.
F. A. GENTH, JR., Secretary.

DO NOT BUY A LENS UNTIL YOU TRY A BECK.
Read this:— BROOKLYN, N. Y.
MESSRS. WILLIAMS, BROWN & EARLE.
Gentlemen:—I have been using two of Beck's lenses during the past season on the Sheepshead Bay Track, where I have officiated in my capacity of Photographer to the Coney Island Jockey Club, and am pleased to say they have worked to my entire satisfaction. I inclose two prints taken from negatives made with your lenses, showing their rapidity as well as good covering power when used with full aperture, as I am compelled to use them for my work. I have used lenses by various makers, but never found one to suit until I tried the Beck, which I think perfection. Very faithfully yours, JOHN C. HEMMENT.

WILLIAMS, BROWN & EARLE,
Sole American Agents for
R. & J. BECK'S MICROSCOPES,
PHOTOGRAPHIC LENSES AND SUPPLIES.
33, 35 & 39 *S. Tenth, Cor. Chestnut St., PHILADELPHIA.*
☞ Send for our New Photographic Bargain Sheet.

A DOUBLE HOLDER
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TOM THUMB CAMERA.

These holders are very light and strong and carry two plates. The *Tom Thumb* plate, being 2⅝ inches square, is used not only for small Portraits, Landscapes and General Work, but also for Lantern-Slides. Enlargements with sharp results can be made up to 12x12 with good effects. Being the Smallest and most Compact Detective in the market, its adaptability as a Satchel Camera (*i. e.*, a camera that may be carried easily in a small satchel), is one of its features. Camera, in polished Black Walnut Case, complete, $10.00. Extra Double Plate Holders, 90c. each.

Send for sample picture and circular to the manufacturers,
THE OBRIG CAMERA CO.,
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Special agents for the Platinotype Process. Printing and Developing done with greatest care.

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PHOTOGRAPHIC BROKERAGE—C. M. Brockway would inform all wanting selected photo goods that he will continue to give his best attention to all orders mailed to his new address, No. 33 Worth Street, New York City.

SPLENDID CHANCE FOR FIRST-CLASS ARTIST.—$1,000 cash can buy photographic gallery in the most flourishing condition. Actual business last year $15,000, although owner was absent six months on account of illness. Ill health cause of sale.
Price of cabinets $8. Lots of large work at high prices.
Almost no rent.
The most careful investigation offered.
Address HEIN PHOTO SUPPLY CO.,
188 Grand Street, New York.

Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS WANTED.

A good retoucher and general workman desires situation. E. J. Wilbur, Zanesville, Ohio.

A young man, twenty, desires a situation as printer. Has first-class references. Address F. S., 40 West 100th Street, N. Y.

Situation wanted as printer or general assistant. Three years' experience. Address A. E. H., 5 West State Street, Johnstown, N. Y.

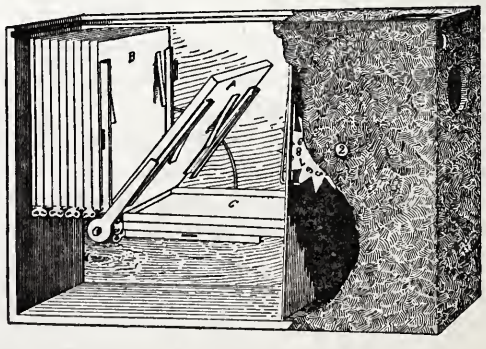
Position as view operator for coming summer. Experienced in printing, toning, and gallery work. Good references. Box 44, Speedsville, N. Y.

By competent middle-aged American, situation as printer or general workman. Best of references as to character and ability. Address B. B. Rice, 96 Adams Street, Springfield, Mass.

The Hetherington Magazine Camera.

NOT AS AN EXPERIMENT, but after TWO YEARS' THOROUGH TEST, in the hands of well known and experienced amateurs, under all conditions of subject, light and climate, we will shortly place upon the market A MAGAZINE HAND CAMERA, the principal features of which are entirely new, being the outgrowth of the inventors' and manufacturers' ten years' trying experience as Amateur photographers. (See page advertisement in THE PHOTOGRAPHIC TIMES, March 6.)

The camera is designed with a view to utmost simplicity, thoroughly practical and easy of manipulation. The working parts are of metal, made by a duplicating system which insures their absolute identity one camera with another. It is free from knobs, projections, strings, doors and metal plates. It is the smallest, lightest camera made carrying 4 x 5 plates, and further, is manufactured under the PERSONAL SUPERVISION of the patentee.



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SCIENTIFIC AMERICAN AGENCY for
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A pamphlet of information and abstract of the laws, showing How to Obtain Patents, Caveats, Trade Marks, Copyrights, *sent free.*
Address MUNN & CO.
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THE GREEN SHUTTERS
THE PERFECTION
THE COMPOUND
THE BON-TON & STEREO.
ARE THE BEST!
SEND FOR DETAILED LIST TO GEO. MURPHY, 2 BOND ST. N.Y.



JUST THINK OF IT!

4 x 5	Rapid Rectilinear Lens	$9 60
5 x 8	Rapid Rectilinear "	11 20
6½x 8½	Rapid Rectilinear "	16 00
8 x10	Rapid Rectilinear "	19 20

Send for price-list and descriptive circular.

BUCHANAN, BROMLEY & CO., Importers,
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SEND FOR THE "SEED" MANUAL
THE SEED PLATE
NEGATIVE & POSITIVE FILMS.
THE SEED DEVELOPER
ON THE USE OF DRY PLATES AND OTHER PHOTOGRAPHIC TIPS
TO GEO. MURPHY, 2 BOND ST. NY

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The FINEST and MOST COMPLETE LINE made, including everything desired.

SPECIAL DESIGNS in Backgrounds without extra charge

Send for new books of Photographs.

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READY-SENSITIZED PLATINOTYPE PAPER and a New Developer for it! We have an Improved Sensitized Paper with better keeping qualities and a New Developer which produces a brighter color in the finished prints. Send 10 cents for sample print and instructions to WILLIS & CLEMENTS, Patentees,
39 South 10th St., Philadelphia.

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Artist and Designer.

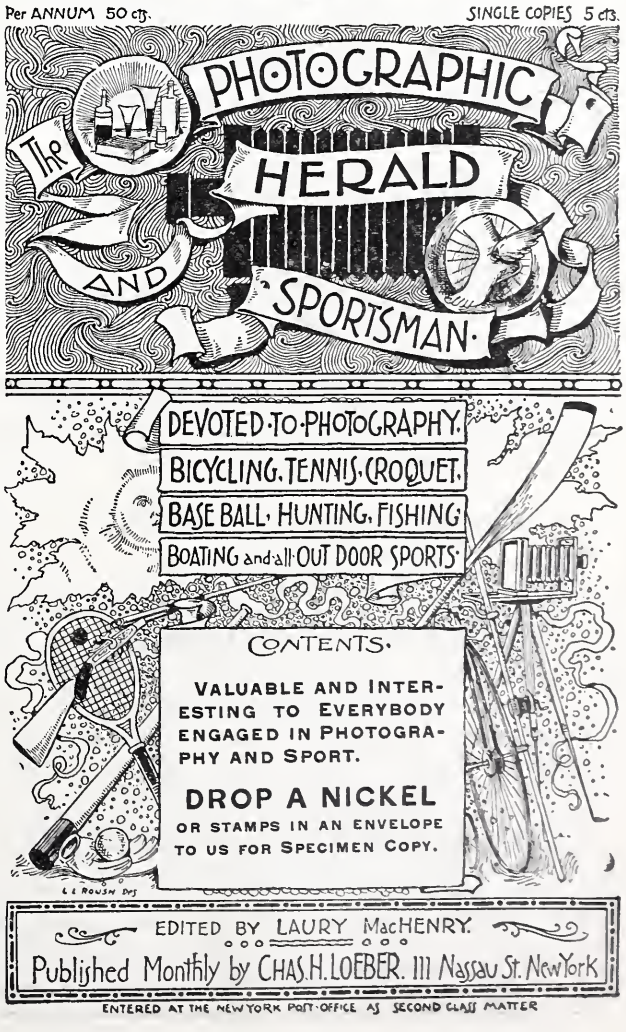
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Ohio Agents for Blair Cameras.

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DENVER.
The only EXCLUSIVE Photo. Stock House between the Missouri River and the Pacific Coast.

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We sell everything photographic. Send list of goods wanted for special estimate.
RED LETTER PRICES.

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5 x 7 Size, Reduced to	$1 35
8 x 10 " "	2 50

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Fully Illustrated Catalogue and Price List mailed on application.

CARBUTT'S DRY PLATES
Flexible **"CELLULOID"** Films
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For Sale by all Dealers.

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BIGGART SOLAR PRINTING CO.,
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We have our own electric light plant and cameras. Good work and promptness assured. Moderate prices.
SEND FOR PRICE-LIST.

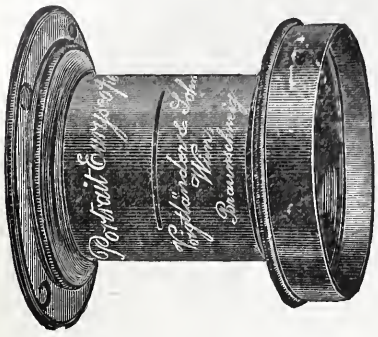
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Everything in Photographic Merchandise required by the Professional and Amateur.

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WATERBURY CARDBOARD.

CAMERA BOXES and other Photographic Apparatus manufactured by the American Optical Company have stood the test for 35 years, and are universally acknowledged as the very best in market.

AMATEURS, ATTENTION!



Please remember that in speed and every desirable optical quality no lenses yet constructed can rival

Voigtlander's Euryscope Lenses,

which are made in SEVEN different styles.

BENJ. FRENCH & CO.,

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Revised price-List sent on application. Correspondence solicited.

Walmsley's "GRAPHOL" Developing Powders.

The best and cheapest developing agent ever introduced. Applicable to all plates or films, and to every class of work, negatives or positives.

W. H. WALMSLEY, LIMITED,

Photographic Stock Merchants,

1022 WALNUT STREET, PHILA.

☞ *Send for Illustrated Price Lists.*

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On and after the above-named date the firm name of C. H. Codman & Co. will be changed to

HORGAN, ROBEY & CO.

On the same date Mr. JOHN STALKER will be admitted as junior partner.

Yours respectfully,

HORGAN, ROBEY & CO.,

Successors to C. H. Codman & Co.

WHOLESALE FRAME DEALERS.



Patented July 17, 1887.

STAMP PORTRAITS.

These are the only stamp portraits that are gummed and perforated, and being the exact size of ordinary U. S. postage stamps, photographers and others will find them an interesting novelty in advertising their business, as they can be mounted on business and visiting cards, letter-heads, etc.

We also make a size four times larger than the stamp pictures. Send for samples and prices, which will be furnished on application.

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Amateur Outfits a Specialty.

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If you want a Lens that will make clear, brilliant, instantaneous pictures, try the "Leverrier Rapid Rectilinear." Send us its price and you can have it a week on trial. If it isn't equal to any lens of its size and focus in the market, or if for any reason it doesn't suit, return it, we'll refund the money. We have also Ross, Dallmeyer, Wray, Gundlach, Morrison, Darlot, and L'Etoile Lenses, and anything you want in Cameras and Photo Supplies. Send for a Catalogue.

JOHN WANAMAKER, Philadelphia.

New Uptown Stock House.

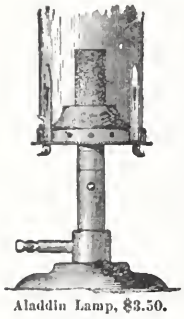
A full line of goods for Amateurs and Professionals.
Send for description of the new "American" Portable Background for Home Portraiture.

Remember the address.

The American Photographic Supply Co.,

13 West 42d St., opposite Reservoir.

IF YOU ARE UP THAT WAY DROP IN.



Aladdin Lamp, $3.50.

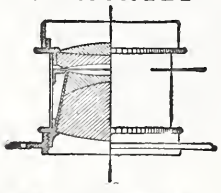
ALADDIN DARK-ROOM LAMP

(Patented),

Burning the patent sodium wick, which produces a non-actinic chemical flame and gives a flood of soft yellow light reposing to the eyesight and nerves. Guaranteed safe for the most sensitive plates. A revolution in dark-room illumination.

STEINHEIL'S

Made in 6 series and over 50 numbers for every description of work



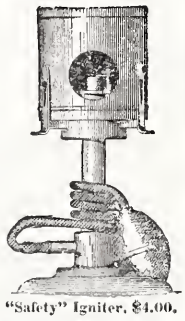
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Attaining the highest perfection in each class.

"SAFETY" FLASH IGNITER.

(Patented.)

The safest igniter to use with Flash Compound. No dangerous, uncertain and expensive alcohol flame required. Ignition produced by a glowing point.



"Safety" Igniter, $4.00.

Write for fully Illustrated Catalogues and Price Lists to your dealer or to

H. C. RAMSPERGER & CO., Sole Agents,

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CATALOGUE ON APPLICATION.

SCHULTZE PHOTO EQUIPMENT CO.
HEADQUARTERS FOR PHOTOGRAPHERS SUPPLIES
5 CHATHAM SQ.
NEW YORK

MENTION PHOTO. TIMES.

"NON-COCKLE"

Is a new preparation for mounting photographs, ferns or delicate fabrics, and is the best mountant ever invented.

Photographs mounted with "NON-COCKLE" will not warp or cockle the mount.

"Omega" and "Aristo" prints when mounted with it retain the glace finish so much desired.

"NON-COCKLE" will keep in any climate. It never sours, and will not stain the most delicate fabric.

It is put up in 6 ounce wide mouth bottles, with metal screw-top. Price, 40 cents per bottle.

For sale by all dealers in photographic goods.

THE SCOVILL & ADAMS CO.,

TRADE AGENTS.

CLEMONS' NEW MATT-SURFACE PAPER.

SOMETHING NEW UNDER THE SUN—A REVOLUTION IN THE ART OF MANUFACTURING.

After many years of scientific research a preparation for the salting of plain photographic paper has been discovered, by which method the finest printing results are obtainable. The advantages are apparent to all.

I.—Constant use will not discolor the silver bath.
II.—Will produce the finest detail in printing.
III.—Any desired tone may be obtained from sepia to jet-black with less gold than ever before.
IV.—The *"New Matt-Surface"* paper when sensitized will keep fresh for a long time if properly stored.
V.—The price has not been advanced.

For sale by

THE SCOVILL & ADAMS COMPANY,
423 Broome St., New York.

Sample Sheets, by mail, 10 cents each.

CARBUTT'S DRY PLATES AND "CELLULOID" FILMS.

TRADE MARK

BRANDS AND SENSITOMETER NUMBERS:

"ECLIPSE," Sen. 27.—Is extremely sensitive, and specially intended for quick studio exposures, concealed and detective cameras, instantaneous views, and magnesium flash-light photography.

"SPECIAL," Sen. 23 to 25.—For portraits, instantaneous views, outdoor groups, etc. *Blue Label.* This plate and our Ortho, Sen. 23 to 25, are the best plates for professionals and view work.

"ORTHOCHROMATIC" Plates, Sen. 23 to 27, give correct color values. The best plates for landscapes, interiors, **photo-micrography, portraiture in varied-colored draperies,** photographing paintings, flowers, etc.

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"A" GELATINO-ALBUMEN Plates.—For lantern slides and copying.

"A" GELATINO-ALBUMEN GROUND GLASS Plates, specially prepared for window transparencies.

STRIPPING PLATES.—For photo-mechanical printers. Emulsions "B" 20 and "Special" 23 to 25, kept in stock. "Eclipse" 27 made to order.

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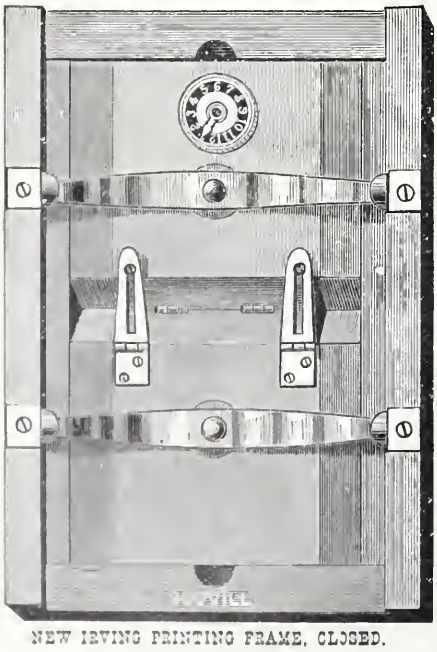
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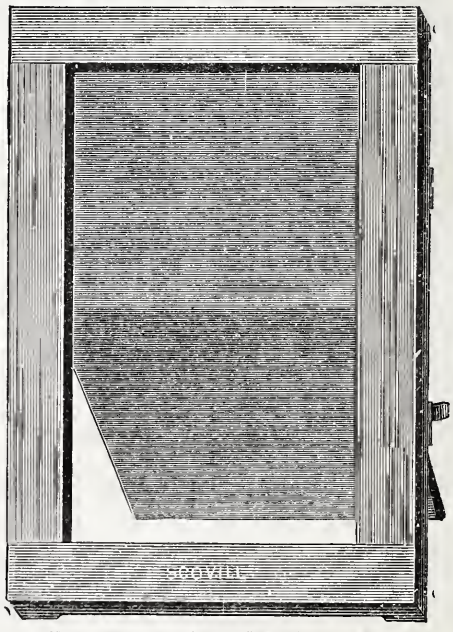
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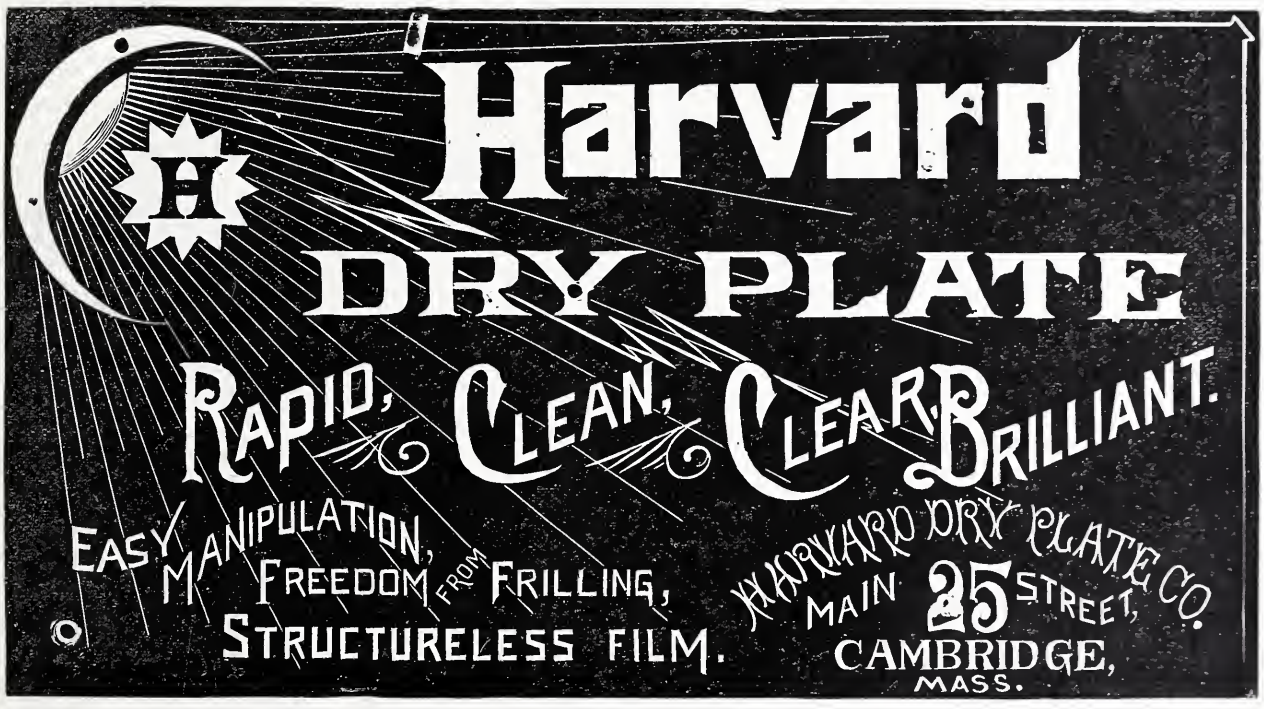
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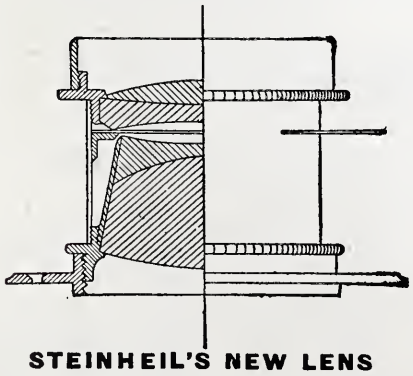
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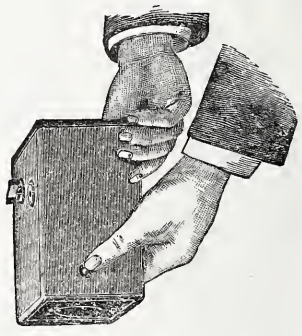
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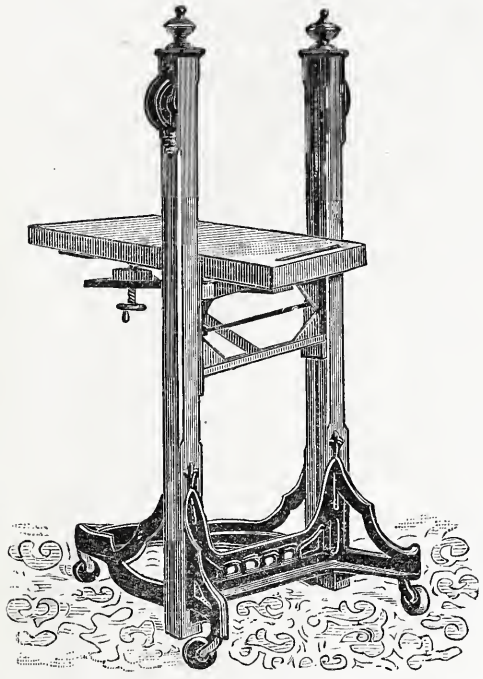
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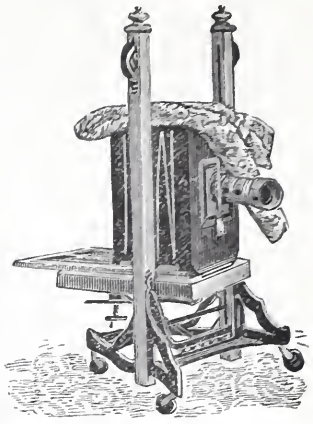
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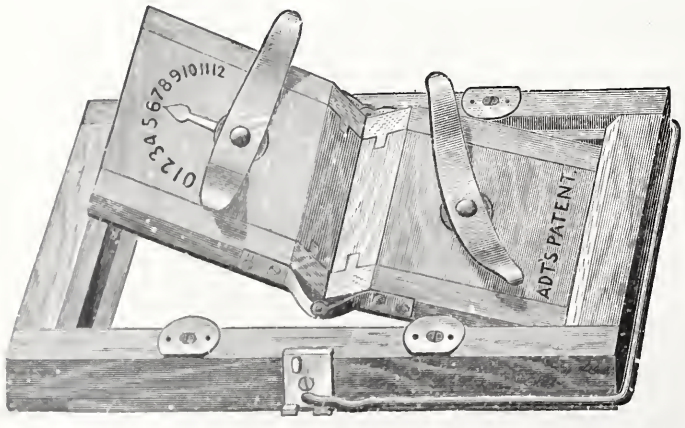
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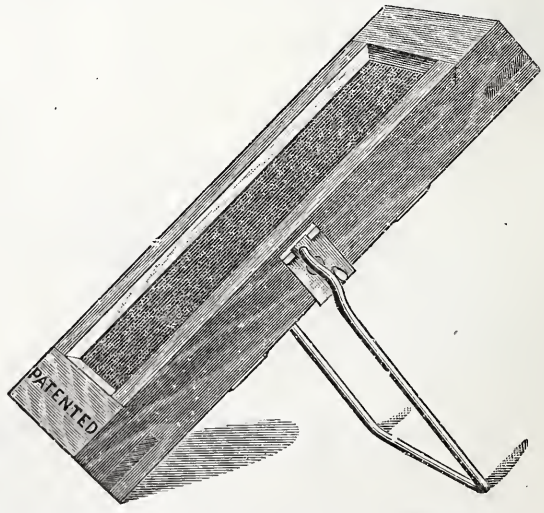
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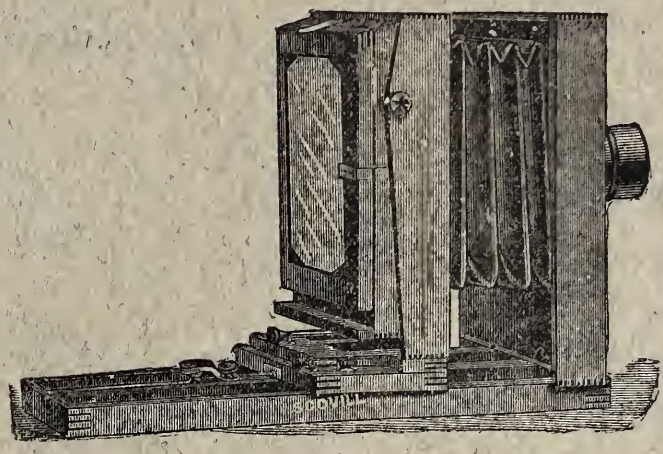
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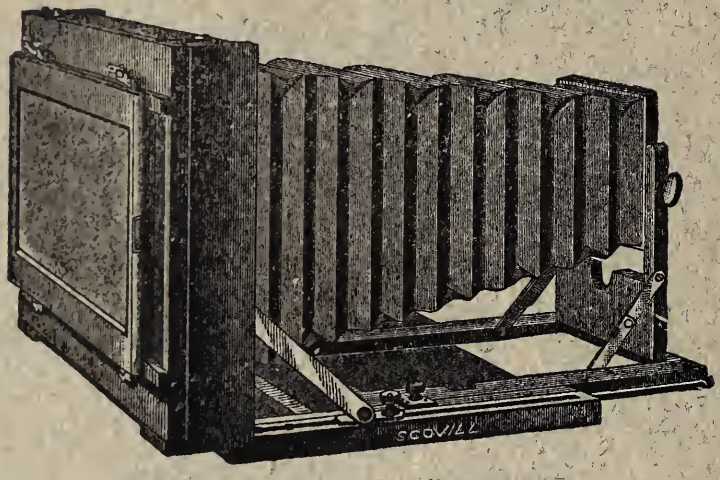
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EASTER MORNING

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, MARCH 27, 1891. No. 497.

MY PAINTING.

HAD I the painter's skill, thus would I paint:
A slender figure, frail, ethereal;
In long, loose morning robe of lucid red,
O'erhung by dark-brown lengths of finest tress
Falling about a frail, ethereal face;
With deep-fringed eyes o'erpenciled daintily,
Clear gray, beneath a high and noble brow.
Wondrous the strength a fine-wrought nature holds!
O well-belov'd! no marvel were it though
Thy fervid soul had crushed thy fragile frame;
The force of thy love—powerful heart not e'en
Thy rare and lofty intellect could pass.
Thou lodestone of affection's richest wealth,
I ever yielded thee my heart's best love:
That best were feebleness beside thine own.
I will not term thee "pearl" of womankind;
That were a word too careless of the true
And self-renouncing women I have known;
But with all gentleness of love for these—
With reverence for each sweet excellence—
Where may I find her whose intelligence,
Conscience and spirit found so high a plane?

Leila R. Ramsdell.

EASTER MORNING.

OUR frontispiece this week is an appropriate figure picture by Miss Emily V. Clarkson, of Pottsdam, N. Y. The pose, the lighting, and the general arrangement of the picture are in excellent taste, and the photographing has been done with the skill which comes from experience. Simple in subject, Miss Clarkson has given us a picture which is entirely complete and satisfactory.

In photography, as in speech or writing, it requires more thought often to be simple and brief than to treat a subject elaborately and at length; and in photography, as in literature, the result of the greatest labor is the most satisfactory.

The negative has been reproduced by the New York Photo-Gravure Company in their high-grade copper plate process.

It might also be mentioned in this connection that Miss Clarkson is a Chautauquan, and was one of a number who sent photographs to be exhibited in Vienna next summer as representative work from the Chautauqua School of Photography.

THE PHILOSOPHY OF DEVELOPMENT.

EVERY experimental photographer, *i. e.*, the photographer who tries all things and holds fast to that which is good, knows that the character of a photograph, so far as light and shade are concerned, and equally so as to values (by which is to be understood in photography the relations of local color when translated into black and white) depends mainly on the relation of exposure to development, a short exposure with forced development giving exaggerations of the oppositions in light and shade and differences in the values, and a long exposure with normal development and still more with strong, flattening the light and shade, softening the modeling and diminishing the differences in the values as rendered in the photograph. On this fact depends the character of all photography so far as the highest artistic qualities are concerned. Composition is something, choice of subject something more, but of greater importance for refinement in the work of a photographer in any branch is this due relation between the masses of light, half-shadow and shadow; and no photograph that does not take thorough cognizance of its importance ought to enter into the album of a collector of taste. The most perfect result is obtained when, supposing the subject to be a landscape, there is in the foreground a point of absolute black with the great mass of the view of moderately lighted material, and then few

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passages of high light which ought to be white paper; and, supposing it to be a portrait, when the passages of deep shadow are of little extent and through the whole subject one feels the values of the different material, masses of flesh retaining their luminousness as opposed to the stuffs and accessories. A minimum exposure will never give such results. In a landscape there will always be masses of indistinguishable shadow which confuse the near distances, for the aerial perspective depends entirely on the gradation of the shadows in the successive distances, and in a head the shadows of the flesh and of the draperies are confounded so that the flesh loses its most essential quality as distinquished from dead matter. This is sometimes ignorantly sought for for the sake of producing startling effects, and the abomination called a "Rembrandt picture" is so produced. But the Rembrandt picture is conceived in the most absolute ignorance of what the character of Rembrandt's work was. He never made flesh black. He concentrated his light in one mass and brought it into brilliant relief by opposing it by broader masses of shadow, sacrificing all the half lights except such as were necessary to keep his lights and his shadows connected, but when he painted flesh, in any effect, he had always the luminousness that belongs to flesh in any relative scale of pictorial values and never confounded it with a dark background or with the shadows of dark drapery, as the "Rembrandt" portraits do. A "Rembrandt" negative is one in which the exposure has been utterly insufficient to impress the less lighted portions of a face, so that when it is developed, they appear buried in the dark masses of the photograph. This can be done to a certain extent in painting, because the painter has a resource in color, which enables him always to distinguish flesh from other materials; but in photography there is no such power, and the attempt is a spurious one—it is simply bad photography and an attempt to make novelty take the place of good taste. Variety has a certain charm in a collection even of photographs, but it should never be confounded with the legitimate attractions of good taste and real beauty. Even in painting, indistinguishable darkness is a vice; and the painter who does not preserve his values loses the most essential of the truths of art, but in photography there is no compensation for the sacrifice, and, therefore, no excuse for it.

The best photograph is that in which the values have been most nearly given as they would be in a correct painting—to give them with absolute correctness is not possible, even in what is called "orthochromatic" photography, but where the material to be dealt with is such as we can always have, and generally do have, in portraiture and in sunlighted landscape, the approximation is sufficiently close, and this can only be got by accurately adjusting the exposure to the development and making the former sufficient to impress every visible detail of the subject. As every practical photographer knows, an under-exposed landscape, or portrait, not only exaggerates the light and shadow, but makes the error in the values greater than it is in a fully exposed one. A full exposure brings your greens up more nearly in their true relation to the grays, while an over-exposure flattens both and abolishes distinctions. The accomplished photographer is he who has learned to judge exactly of the strength of the light on the subject and measure the exposure accordingly, so that the normal development shall bring out all the gradations in it and reveal what is the grand fact in nature—its light. The judicious worker knows that an under-exposed negative is not to be developed to the best possible negative, while an over-exposed one may be restrained within certain limits, so that he is careful to carry the exposure to what we may designate as the maximum. Now, with such a negative to be developed, the operation becomes one of the most fascinating in the range of the manipulations of a mechanico-chemical nature, as requiring great skill and felicity of judgment, accompanied by taste and directed by experience. The philosophy of the operation is in the control of this reserved force. It is like having a steamer provided with engines which are capable of developing a much larger force than is likely to be necessary and more than the ship would use at full speed. There will be no straining in running.

In the process of development the sensitive film is subjected to two influences: Ordinary disintegrating effect of the developer which has a tendency to reduce the silver to the metallic state without any action of light; and the reducing effect of light which is to a certain effect independent of the developer. The former, when acting alone, catches hold of every weak point in the film, every atom which can be made the center of a disturbance, and if the action of the developing agent is energetic, fog, spots, etc., result. The general reduction goes on, but the weak points are the first to give way, just as the weak parts of the machinery would if the steamer were driven to the utmost power the engines could develop—the defective joints in the boiler, the light shafting, or a flimsy valve. In the film these weak points are particles of dirt, chemical substances foreign to

the proper composition of the film, the touch of a dirty finger, etc., etc., but when the film has been properly impressed with a latent image by the action of light, these accidental causes of reduction of the haloid to metallic silver have a minimum effect, and the operation of the developer is more completely controlled by the prior impulse given by the light; or, to resume my figure of speech, it is like a steamer going at its full speed with the engines working easy—it is the ship that yields to the driving power and not the engine that breaks down before the resistance of the water before the ship. Supposing this action which the light has on the film, preparing it for the reducing action, to be in excess of what is actually needed, we shut off steam, *i. e.*, we either reduce the power of the developer, or we add a retarding agent, such as bromide of potassium or other similar salt. Here again two distinct agencies are in question. Using a weak developer is like carrying a low pressure of steam; using a retarding substance is like towing a raft astern to keep the ship from going too fast. The latter is an irrational operation. You use more force than you want, and then you use something to neutralize it. It is like the Irishman cutting off the upper end of his blanket to sew it on the foot because it was too short at the bottom. The only true system is to use a developer that will just do the work and give the developer the least opportunity to act on the unexposed film.

But, some one will say, we cannot always tell whether we are going to need the restrainer or not; the film may be more exposed than we supposed. The true precaution in this contingency is to begin with a lower power of the developer than you think you need and wait till it is sure that it is insufficient. This requires time, and most people are impatient to see the results. The best photographer I ever knew used to take a half hour for every plate he developed, even when when he was working a half plate. He never hurried development, and he would get more out of an under-exposed plate than any man I ever worked with. This was Russell Manners Gordon.

The true moral of the matter, the sum of its philosophy, is: Give nature the largest margin and leave the least to accident. Always work a long distance short of your highest power. Never hurry. But if you can't do a thing to-day leave it till to-morrow, and remember that one first-rate negative does you more honor and is a better thing for the world than ten second-rate, and that it is folly to spend an hour finding and taking a good subject, or arranging with care and taste a fine head, and then spoiling them for want of a half-hour given to the development. *W. J. Stillman.*

EDITORIAL NOTES.

Early Photographs of Lightning.—It has been asserted that the first photographs of lightning were made in 1877 by an Englishman named Sarman, but now a correspondent to the *Archiv* writes that fifteen years before that date Guenther, of Berlin, assisted by Professor Dore, the great physicist and meteorologist, was able to obtain an impression of lightning on collodion plates. They were made at the Observatory of Berlin.

A Hydrochinon Developer has been recommended by Dr. O. Lohse, which is worth a trial:

Water	1 quart
Hydrochinon	2 drams
Crystallized sulphite of soda	1 ounce
Crystallized carbonate of soda	6 drams
Resoncin	6 grains

The solution copies well, develops excellent printing negatives, and with a larger amount of resorcin, shows decided restraining properties suitable for over-exposed plates.

A Property of Eikonogen not heretofore Recorded has recently been observed. An old eikonogen developer, which has changed to a yellowish brown color, will show a decided green fluorescence when considerably diluted with water.

A New Plate.—Victor Schumann has photographed ten ultraviolet spectrum to a very considerable extent beyond the wave line 1820. He says: "I have obtained photograms twice and three times as long as the total spectrum region between the line H and the aluminum line 32. Hydrogen possesses the highest photogenic energy and the most refrangible rays, and no other spectrum is so rich on lines in the farthest ultraviolet. These photograms can only be made in vacuo and with plates sensitive for ultraviolet rays. Very short light waves have not been photographed heretofore, because no plate, not even gelatine emulsion, is sensitive enough for them;" but "I have made a plate with a photographic maximum in the region of the most refrangible rays of the spectrum," says Herr Schumann, "which I will soon lay before the public."

A Good Formula for Kallatype Printing is composed as follows:

Sodium ferric oxalate	2 drams
Water	6 ounces

Coat the paper with this solution by means of a brush, or float it on the solution from one to two

minutes, and then dry quickly. Print until the middle tones become visible and develop with the following solution :

Nitrate of silver.....20 grains
Citric acid.....15 grains
Water..... 8 ounces

then wash in pure water.

Another developer for kallatype is composed of

Citrate of iron and ammonia..... 1 ounce
Water.....10 ounces

The tone produced is of a brick red, which changes to a fine pink in acid, and to a purplish black in alkaline gold solution.

For the first developer prints of sufficient density may be obtained in diffused light in a few minutes, but the citrate developer requires a somewhat longer printing. In neither case, however, should the paper be printed as deeply as Willis platinum paper, for instance.

THE New York *Tribune* describes two novelties for photograph holders which may be made out of fans. One is a palm-leaf fan, over which is put a thin layer of cotton wool, sprinkled with violet sachet powder. This is then covered with China silk of any shade desired, and a piece of pasteboard with which the whole is bound together on the back is covered in the same way. Another strip of cardboard is sewed on to hold the cards. The other fan differs only in the shape, it being one of the round pattern.

THE catalogue issued by the Photographic Section of the Manhattan Chapter of the Agassiz Association is a well-arranged and neatly printed pamphlet, containing on investigation some rather significant facts. It shows that there were 278 photographs exhibited from negatives on only a very few brands of plates, among which Carbutt, Cramer and Seed, were in a decided majority. There were five lenses employed: Morrison, Suter, Ross, Beck, and the single lens (Waterbury). The single lens is shown to be by far the most popular by the fact that 44 of the photographs were made with it. The Suter lens comes next with 35; the Morrison third, with 30; Ross had 16; and Beck 6.

Of the printing methods employed, silver albumen was in the majority, but platinotype and cyanotype were well represented.

EXHIBITION PHOTOGRAPHS.

IN one respect, it seems to me, the exhibition of photographic prints can be greatly simplified and improved, and that is by not only not requiring prints sent for exhibition or competition to be framed, but making it a condition that they shall be submitted without frames, and mounted on simple cards in the usual way. This puts all work on the same footing as it should be where the competition is for photographic excellence only, and prevents pictures from receiving an undeserved amount of credit by virtue of handsome and expensive frames.

In another respect it would be a great advantage to exhibitors and to the exhibition itself. Many amateur photographers, whose work would do credit to any gallery of artistic prints, have neither the time nor the inclination to go through with the labor and trouble required to mount prints, get them framed, packed properly, and shipped to their destination.

To most persons this is infinitely more trouble than taking the negatives and making and toning the prints. If the prints could be sent unmounted to the committee in charge, and then turned over to any regular photographer to be mounted and burnished—of course, at the expense of the exhibitor—a great deal of trouble to all concerned would be avoided; the exhibition would be better and more interesting in every way, except perhaps to the frame maker; and the number of contributions would be largely increased. Speaking for myself, I may say that I have never yet had the leisure or the disposition to submit to the bother of mounting and framing prints for the sake of sending them to any exhibition, and I have no doubt there are many others in the same situation. I am always willing to make and give away prints upon any reasonable pretext, but the party of the second part must take them unmounted. It is easy to wrap up and inexpensive to mail silver prints, but when they are on cards it is not so simple a matter.

S. W. Burnham.

HIGH LIGHTS, SHADOWS, AND HALF-TONES.

BEGINNERS in photography are sometimes puzzled to understand the above terms. They read in their books of instructions something like this: "In developing the exposed plate avoid getting the 'high lights' too intense, before the details are well out in the 'shadows,' and preserve the 'half-tones.'"

To understand clearly why there are high lights and shadows I will refer to physical science.

Light is defined as that physical element, agent, or force, by virtue of which we see.

Chromatics is that part of the science of optics which treats of colors. When light falls on an object it falls in straight lines, and a portion of that light rebounds, or, as it is usually termed, is reflected. The quantity of light so reflected depends on the character of the object on which it falls and the angle by which the light strikes the object. Some objects reflect much more light than others, for some absorb nearly all the light which falls on them. Hence the origin of color. When a body reflects none of the rays of light that fall upon it, but absorbs it, such objects are called black, Black then is the absence of all color. White is the exact opposite of black, and is the admixture of all colors, for when a body reflects all the rays of light that fall on it, it will be white. A high light then is that light which falls upon an object and is reflected back. Hence a high light is white, and such will show white in a positive print, and the opposite or black in a negative, and the more complete the reflection of rays, the whiter will be the object.

A shadow is the darkness caused by the interception of the rays of light.

A half tone is a tone or color midway between a high light and shade, or half-way between white and black, or as understood by photographers, I will define it as a gradation of light.

Let us now apply the foregoing to practical photography.

The high lights in a landscape view may be said to be such objects as reflect all the rays of light that fall upon them, in short, white; that is, the high light is white when seen on the screen of the camera; such are the sky, smooth water, a white house, white fences, and similar objects.

Polished, shiny objects, though black, reflect a great deal the light that falls on them ; a silk hat, for instance, in a strong light, though the object is black, the high light will show white to the eye as well as upon the focusing screen, by reason of reflection. Take a piece of machinery, a locomotive for instance, the high lights will be seen on the polished rods, the Russia-iron casing around the boiler, on the smoke-stack if newly painted, and on other polished or shiny surfaces, these appear white to the practiced eye, but more clearly to a beginner on the screen or on the print. In portraiture the high lights may be seen noticeably on very shiny, colored men's faces, on the prominent parts of their features, all of which shows white on the screen, consequently will print white. The high lights are those dark parts of the picture which show or "come out" first in the development, and they continue to darken or intensify as the development progresses (unless restrained, as will be seen further on), until the proper printing density has been secured and the plate washed and fixed.

The shadows are the dark portions of the positive print, or that part which is white or transparent in the negative. The shadows contain a great deal of detail, and by reason of the interception of the rays of light, or their absorption by the object, these parts develop slower than the high lights. Hence the necessity of retarding the development of the high lights and the advancement of the shadows to bring out the fine detail they contain. Were this not done the high lights would become too intense, the middle tones would be removed and lost, and a hard, harsh picture the result, by reason of violent contrasts.

On the other extreme, if a plate is developed so as to produce an even half-tone all over, the positive print will be flat and cold. Having no contrasts, no gradation of high light and shade, it would, therefore, be inartistic and of no account. Were it possible to grade the exposure to suit the different objects in the view—that is, to suit their absorptive or reflective character, then the use of a normal developer would produce the desired effect, viz., to bring out the lights, middle tone and shade in beautiful gradation and harmony. But as this is not practical, we must content ourselves with tentative development, or the cut-and-try method. Herein lies the main trouble met with by amateurs, by reason of the use of a normal developer, or developing by rule, as I call it, in place of tempering the chemicals to suit the exposure and light. To those that this article is intended for I will say that it will be to their interest to study and closely follow the lessons given on the above subject in the "Photographic Instructor." By doing so they will develop intelligently and successfully.

T. J. Bray.

A FEW THOUGHTS ON PRICES FOR PROFESSIONALS.

The subject of prices has been so thoroughly discussed in the photographic journals that it seems difficult to say anything new in regard to it, but perhaps it is well to reiterate occasionally some things that have been said, and try to bring about a more friendly feeling among photographers.

Two facts confront us which are to be greatly deplored. One is the great prevalence of ticket selling, house to house canvassing, club work at reduced prices, and the like. The other, the tendency to make simply a mechanical factory business of photography without regard to the artistic part.

The former, and by far the greater evil, has probably done more to cheapen and degrade the art in the eyes of the public than anything else. It is hard times indeed when an artist is obliged to go around and beg and solicit people to patronize him—and that is what he virtually does when he resorts to such methods. A canvasser of any kind is regarded by most people as a bore, yet photographers will send them around among their friends and patrons.

The canvasser as a rule is some transient person who has come along and has no interest except to sell the tickets and get his commission; he frequently does not care what statements he makes, providing he can sell the ticket; he may promise more to the buyer than you intend, and that makes trouble for you; and any one who has tried it will tell you these ticket buyers are the most exacting of patrons; they think (quite naturally) that as you make the picture at a reduced price, you will try and get even—by using cheaper material or putting in less labor—and are constantly on the watch to see that you do not cheat them.

Again, there are dishonest and unjust phases in these methods. For instance, an agent will carry around a cheap solar print smutted over with some crayon, call it a first-class thing, and perhaps say he almost gives it away to introduce so-and-so's photographic work—when his only object is to sell his picture.

If your regular price is $5 per dozen for cabinets your ticket price is perhaps $3. Of course you have to make a considerable reduction from regular rates or you will not sell many tickets. Suppose you have several customers in, one, or more, a regular patron who has had pictures at your studio for years, and paid you a great deal of money, the others ticket holders who are anxious to get pictures for the lowest price, and will rush over to your competitor if he will make them for twenty-five cents a dozen less. Do you not feel rather mean to charge the former, who have no tickets, the full price, and give the others the benefit of the low rate?

In the larger cities there are men of means and business ability who run galleries as they would factories; buy stock in large quantities, hire help as cheap as possible, put prices down low, and try and freeze out their smaller neighbors. But is this not the case in every line of business? Do you not stand a better chance, photographer, than a shoemaker who depends on his own labor for a livelihood? If you have artistic ability and put something besides mechanical work into your pictures you can successfully compete with any picture factory in the country. There is a constantly growing number of people who appreciate artistic work in photography, and are willing to pay for it, and in this there is hope for every one who will study art principles and apply them.

When the people can be made to realize that it is artistic skill and labor that they pay for, more than for material, they will see the difference between good and bad work.

Another thought. Is the price of pictures much lower than it was ten or fifteen years ago? You say yes; we used to get five or six dollars for cabinets then, and now we can get only three or four. But reflect; probably two-thirds of the work then was cards, for which one and a half to three dollars was paid, and now it is most all cabinets or larger, so you are likely to average as much if not more money per customer than you used to, and it costs but little more to make cabinets than cards; the stock costs more, to be sure, but the labor is almost the same.

The dry plate revolutionized the business. We can do more work now than formerly, and can afford to make pictures for a little less. Just think of the difference in photographing a troublesome child on wet or dry. Think of the uncertain negative bath, and lots of dirty work that is avoided now.

Some think the amateurs are spoiling the business, but they are not. They pay out a great deal for printing, developing, etc. Their practice develops a liking for pictures among the people they associate with.

There are many reasons for optimism. The demand for pictures is constantly increasing and prices are not likely to go lower until some new process is discovered which facilitates the production of pictures.

The same adaptability and enterprise required in any line of business will surely bring success in photography.

There are so few photographers comparatively, it would seem that they might organize and work more in harmony. Of course, there will always be a great difference in prices in different studios, as there will be in quality of work. It is useless for any association to dictate just what a man's prices shall be, but the photographers in any town might get together and make a written agreement to give

up ticket selling and something-for-nothing methods, and thereby much good might be accomplished.

E. B. Luce.

A PHOTOGRAPHER'S DREAM.

Harry Westall was an out-and-out Yankee, up to all kinds of dodges and inventions, jack of all trades and especially fond of such mechanical contrivance as was most called for in a country community where farming was the chief interest and mill-wheels the most important machinery. There being no proper hotel in the town, people who stopped there had to board with some prosperous family, of which that of Farmer Westall was one, and it fell to his lot to entertain an amateur photographer who spent a fortnight or so taking views in the neighborhood. Of course Harry was useful and officious and ended by becoming initiated in all the operations required in the business. The amateur on leaving made him such compensation as only Harry would accept, giving him a camera which belonged to the last fashion before that in which his own was made. It was serviceable, but the conception of something better and something new came with it. He invented a new camera, and with the facilities the locality afforded, set to work to put it into shape. It was very ingenious—dark-room, changing-box and what not combined—a wonder of contrivance and complication. He meant it to be an automatic negative-maker.

Of course he failed, but that is neither here nor there, and has nothing to do directly with my story though indirectly it is the origin of it, so that the process and details of his failure are not relevant. He found that the carpenter's work he had done was no apprenticeship to camera-making and his automatic slide wouldn't fit so as to shut out the light, and the changing apparatus wouldn't work, and there was no end of bother about many things. He worried over it all through the week, and as he was a good Puritan by heredity and education, when Saturday night came he put it away on the shelf over his bed and tried to put it out of his mind. But he calculated without knowledge of the effect of thinking on the gray tissue of the brain and when his will had gone to sleep the gray tissue went on working. He dreamed. In this dream were mingled all the speculations which he had been a listener to from his teacher in photography, instantaneous work, photography in natural colors, etc., etc., and he became painfully conscious that it was Sunday, when he ought not to be occupied with his worldly interests; and though he tried his best to put behind him as a share of Satan this fascinating camera, he found it continually coming before him and turning itself round to show him the weak points, and when he turned away to avoid it, he saw it on the other side again. And then there came a collection of lenses, Ross's and Steinheil's and Gundlach's and others in a file as long as the moral law; and then he saw a huge dark-room like that which he had seen in the manual of his friend, and at the door stood the Devil with a seductive smile on his face and beckoning him in. On Sunday? No! and he tried to turn away from the temptation but couldn't, for it followed him like the motes on the retina, and the smile on the face of the tempter grew more and more seductive as he remarked, "Don't be afraid—you are not obliged to do anything—come in and rest and I'll show you some of my photographs, good moral lessons; show you how they treat sinners in my quarters—can't do you any harm and it's as good as Deacon Sampson's sermons and forty times as interesting." And he pushed the door open wider and added, "The system of lighting is new—it's red lightning, made specially for my use;" and Harry, half against his will and feeling terribly conscious-stricken all the time, allowed himself to be tempted in. As the door shut on him and he found himself in utter darkness, he had a horrible qualm, but he was no coward and his conscience consoled itself by saying that he had nothing to fear, having done no harm and that nothing should tempt him to take part in any operation of the infernal photographer, with which resolution he became calm. The Devil turned the key of his electrical light and the room became flooded with a glow of red which came from nowhere in particular, and his host pointed him to a sofa on which he sat down, whereupon the sofa curled up around him, came up under his arms, fitted itself to his back and made him more comfortable than he could recollect of ever having been in his life. "Show you some slides," said his entertainer, and touching the key again the light diminished until Harry could just see, when he was made aware of a huge magic-lantern in the middle of the room which began throwing a powerful light on a great white screen at the end of the room. This was nothing new, for the lecturers had made all Smithtown familiar with the lantern for years, and when Satan said that he would show him the orthodox place of punishment he quite expected to see the usual sort of dioramic picture something like a battle piece, flames and caverns and people in the midst; but as the view cleared up and the smoke which at first veiled it

opened in passages, he saw little lakes of simmering brimstone, and in and around them multitudes of human beings gasping and writhing, and he thought he could hear the groans and lamentations, for as he watched he distinctly saw them moving and perceived that the whole picture was animated, and the little devils came out of the caves in the rocks and ran round prodding one here and another there as they seemed to be getting out of the heat and fishing out others to lie on the shore a little and then be pitchforked back again. "That is what your good folks think is the punishment of wickedness," said the entertainer to Harry; "as if that sort of thing could be kept up and not lose its force. Why they'd get used to that in time, not to talk of eternity. Roasting and boiling and such dodges are the things for an inquisition—poor inventions. Now I'll show you what it is to be in hell." "But," put in Harry, "how do you get your natural colors? And then your little devils go about like fun—they seem to be alive—how do you manage it? I never saw photographs like this." "No," replied Satan, "this is naturalistic photography. That is my speciality in art—just as like things as they can be, and as everything in nature is imperfect ever since I had a finger in creation, I am interested in pure naturalism. *W. J. Stillman.*

(*To be continued.*)

Correspondence.

"OUT-OF-THE-WAY" PHOTOGRAPHY.

To the Editor of the PHOTOGRAPHIC TIMES.

Dear Sir: It pleased me much to receive your letter in reply to mine. In sending you the promised photographs I shall send you but two or three. They are made with the small, cheap 5 x 8 Gundlach lens, brought to me for trial by my son. The subjects are written on the backs of the mounts. There is no retouching on any of my photographs. I do not like *bastard* photography of any kind, nor have I yet tried to photograph "the language of the soul." I do not like the mixing of things that will not nor ever will mix. If truth is at the bottom of the well, let me find it embalmed in a true photograph.

I send you some trials I have made to test the possibility of taking photographs by pure moonlight. In doing this I have always waited long after twilight had gone. On the backs of the cards you will find the date of taking, time of exposure, etc. From the uncertainty of results in experimenting I do not stop to seek for objects of pictorial beauty, but take those that are convenient, presenting qualities whose effects upon the plate I wish to note as differently colored objects—houses, foliage, rocks, etc. I do not know exactly to what extent or success other persons may have secured results in this kind of work. The extent of my information is pretty much embodied in a few of the back numbers of your own journal. The light of the moon is but a very feeble agent to work the camera with, for even in its most favorable condition, objects cannot be seen on the ground-glass sufficiently bright to focus with positive certainty.

These impressions will, I think, show you that there is little or no difference between solar and moonlight other than that of intensity. The photographs of the three houses are all different colors; the one on the left is white, with dark green blinds; the middle house a pale reddish yellow, shutters light yellow; as the front lower room is kept as a small store, the lights were burning, also in the entry. These you can see in the photograph in the windows and over the front door.

The lights also show in the other photographs with the distant view by moonlight. In these results I find all the usual effects of solar and daylight; but with these there came something else which I did not expect to come, and old a hand as I am with the lens I was astonished, for there came upon the plate objects which I could not see from the place the camera stood. These objects, so clearly on the plate when looked at from the stand, presented nothing to the eye but a confused mass of undistinguishable shade, with no perceptible individuality. I then thought that my eyes had begun to feel the effects of years, so I employed other and younger eyes, placing them at the spot the camera stood, but they could see no more than mine could.

I will not here enlarge upon the above result, but will say that it seems to be the same kind of wonder that results in astronomical photography, and which have been noted with so much comment in publications of late. Do not misunderstand me in this matter. I think there are glimpses, as it were, of the workings of some as yet unknown law in nature to employ powerful means either by the aid of optics or mechanics to produce wonderful results. Man may progress in that direction; in this he works in accordance with *known* laws. But he may find and work with as yet an unknown law, and extend the limits of his knowledge, and this may come through and may prove the true "mission of photography" to man. Thereby he may possess as the poet Wordsworth expresses it,

"Authentic tidings of invisible things."

You will fail I think in these photos to detect any of the moonlight effects which the painters have given us. It remains to be seen if these can be obtained. But nothing of this kind was attempted; all that I tried to do was to get upon the plate as much action of the actinic influence as I could and to study well the effects of this force. With these also I send you for your inspection a few photos made with a lens whose construction and performance I thought might be new to you. I always endeavor to keep posted on what is doing in the photographic world, but I have no knowledge of any attempt to produce pictures with a lens of the kind employed in the production of these. You may remember in Brewster's "Optics" mention is made of crossing two cylinder lenses at right angle to their optic axis and placing them together. The effect would be similar to that produced by a double convex lens. The study of optics has always had a charm for me, so lately I procured a set of the kind. I placed them in a temporary paper tube, and attached them to my camera to see how they would work. You can see how they perform. Of course they are not achromatic, but my experience in making good photographs with a common spectacle glass taught me how to work with them. Please note the flatness

of field, depth of focus, and a softness of diffusion of outline which, as you inform us in one of your editorials, is much discussed in England and is sought for by some, and is styled "the fad of the diffusion crank." Keep in mind this softness is produced, and increased or diminished, and under perfect control, by movement of the two lenses from their optic centers.

I have a few other things that are, I think, out of the common kind, but I will wait a little and try and learn if you take any interest in out-of-the-way-photography.

So with great respect I remain, yours,

Charles Fontayne.

PASSAIC, N. J., March 18, 1891.

[Mr. Fontayne's photographs accompanying this letter are very interesting, and we shall be glad to show them to any one who may call to see them.—EDITOR OF THE PHOTOGRAPHIC TIMES.]

If you want a pretty picture to frame take the frontispiece of THE PHOTOGRAPHIC TIMES of February 27th. It represents a young girl in white sitting on a lawn chair. It has a roundness that is wonderful in a photograph, and is reproduced in a process that strongly reminds one of etching.—*Fremont Journal.*

PHOTOGRAPHY IN COLORS.

THE scientific world has been justly surprised when, on February 2d, Mr. Lippmann announced to the "Académie des Sciences" that he had succeeded to obtain of the solar spectrum a photographic colored image, and that this image could, without it being altered, stand the ulterior action of light.

One had not forgotton the remarkable researches of Mr. Edm. Becquerel. We knew that colored reproductions of the solar spectrum were obtained by this physicist on a layer of argentous chloride formed upon the surface of a silver plate, and that some of these photographs still exist, which for more than forty years have preserved all their éclat; but that the phenomenon being due to an incomplete transformation of the sensitive substance, the ulterior luminous action caused it to disappear by completing the transformation.

The same inconvenience does not occur with the proofs Mr. Lippmann has obtained by a purely physical process in applying the phenomenon of the interferences. Let us explain in a few words in what this phenomenon consists: We know that any source of light is the site of a vibratory motion; that the oscillatory velocities succeeding each other in this motion are closely transmitted one after another to the molecules of ether, and that they are perpendicular to the direction of propagation, that is, to the luminous rays.

One calls length of wave the distance at which can be transmitted a given oscillatory velocity during the period necessary for a complete oscillation; it is also consequently the minimum distance apart from two molecules of ether which, placed on the passage of the same ray, receive at the same moment equal velocities and in the same direction. The length of the wave varies with the color of the light.

If by any means whatever we can simultaneously transmit to the same molecule of ether two oscillatory velocities started at different periods from the same source, the molecule will assume a resultant velocity which will be inferior or superior to the composant velocities, according as the latter are in the same or contrary direction.

Hence, let us suppose that we normally receive on a mirror a homogeneous ray of light, it will be reflected according to its own direction, and a molecule of ether placed on its course will simultaneously receive two different oscillatory velocities, one which is directly transmitted by the incident ray; the other, transmitted by a reflected ray which, consequently, has traveled over a longer distance, and, therefore, has started before the first from the source.

If the difference in the march of two rays is exactly equal to an entire even number of half lengths of wave, the two velocities have started from the source at periods separated by an exact number of complete oscillations; they are equal and in the same direction, and will simply add one to another; consequently for any point, such as the difference of march of the incident and reflected rays is equal to an entire and even number of half lengths of wave, the resultant velocity will constantly be minima; it is a loop, hence, as the difference of march is equal to the double of the distance from the point to the mirror, increased by the half length of wave in consequence of the reflection itself (as shown by Young), the loops will be at the points whose distances from the mirror are equal to $\frac{1}{4}$, $\frac{3}{4}$, $\frac{5}{4}$, etc., of length of wave.

For any point such as the difference of march of two waves is equal to an odd number of half lengths of wave, that is for any point whose distance to the mirror is equal to an even number of quarters of wave, the component velocities have started from the same source at period separated by an odd number of half oscillations; at every moment they are equal and of contrary signs and mutually annulate each other; at these points the resultant velocity is constantly null; they are the nodes. For the intermediate points we will have intermediate results.

If, instead of one unique ray, we take a pencil of parallel rays, the point of the nodes and loops will be a system of parallel and equi distant planes, and the distance of two successive planes of loops will be equal to the half length of wave of the color employed; that is to say, in the case of the yellow color, 0 m.m. 000138.

Let us suppose now that in contact with the reflecting surface we have placed a transparent film of a sensitive substance (collodion, gelatine, albumen holding silver chloride or bromide) which can be considered as perfectly homogeneous; the silver salt will be reduced in the film only in the immediate neighborhood of the plans of the ventral segments; after development, we will have in the thickness of the film a series of parallel laminæ formed by reduced silver; these laminæ will be transparent by reason of their extreme tenuity, but they will possess a considerable reflecting power. They will contain in themselves laminæ of transparent substances, having as thickness the half length of wave.

If, then, we take the system thus obtained, and illuminate it, about normally, by white light, here is what will happen in the first laminæ, for example; following a same direction, the eye will receive a ray reflected from the layer of superficial silver, and a ray which, after having crossed this layer and be reflected by the second, will have

again crossed the first; these two rays will interfere with each other, and by the same phenomenon observed in soap bubbles, this interference will give rise to an apparent coloration of the lamina. As the thickness of this lamina is equal to half length of wave of the color employed to form it, the difference of march of the two superposed rays will be equal to a length of wave of this color, and, consequently, it is it whose intensity will be maxima; it is it, therefore, which will appear to the exclusion of the others.

The sensitive film contain a very great number of these laminæ—a hundred if, for example, it is $\frac{1}{20}$ millimeters thick; but they will nevertheless give rise to concordant phenomena; the intensity and, also, the purity of the color will be increased.

On the whole, viewing the system by reflection, it will represent the color of the pencil by which it has been formed.

If, during the first part of the experiment, one projects on the reflecting surface, covered with the sensitive substance, juxtaposited pencils formed of simple colors, each pencil which gives rise to a region where the color will appear after development. If, lastly, juxtaposited pencils are projected on the same point, it will result in the sensitive film a system more or less complicated of laminæ of reduced silver; but, as in a complex sound the elementary sounds do not reciprocally trouble themselves, the phenomenon of coloration will combine without being altered, and the color appearing on the cliché be that of the pencil.

In a general manner, the system should be examined by reflection and on a black ground; by transparency, the true colors would be replaced by their complementary.

It is well understood that these phenomena will be produced only when, after development, the sensitive film is dry, and that, consequently, when the laminæ of reduced silver have assumed their normal distances. In the wet state, these distances will be altered by the swelling of the gelatine or the collodion. At last, it is quite evident that the sensitive substance should be homogeneous, and that no result should be expected if, as it arises with most emulsions found in commerce, the reduced silver is formed by grains whose diameter is comparable to the half length of luminous wave.

It remains to describe the operating method, and we express our thanks to Mr. Lippmann for his extreme kindness in showing us his experiments.

The sensitive film is spread on a glass plate; until now, at least, it is obtained in the following manner: the plate is coated with albumen, collodion or gelatine, and then sensitized by immersion in a silver bath, then (washed) and dried. It must be transparent with a slight blue opalescence.

The plate is placed, sensitive film inward, against an ebonite frame, the other side of which being any plate whatever. The whole tied up forms a small tank, which one fills with mercury. The tank is then placed vertically behind a lens in such a manner as the sensitive film be in the plan where the image of the object is formed.

This object has been sometimes a spectrum obtained by means of a narrow aperture and a prism, sometimes a kind of stained window lighted by transparency, the light being that on arc lamp of Cance's system, with a condensator giving a pencil of parallel rays.

The exposure time much varies with the colors; very short for the violet, it should be pretty long for the red whose chemical action is, as well known, very feeble, and during the greatest part of the experiment the most actinic rays should be stopped by means of colored screens.

Half an hour can suffice to obtain a good image of the spectrum, but the violet must be allowed to act only for a few seconds.

At last the development of the image is made with pyrogallol in presence of an alkali.

It must be said that modifications, more or less important, might be done in the operating method, Mr. Lippmann having been able to make but few assays, specially in regard to the preparation of the sensitive film and the development of the images.

No doubt there is yet much to be done; the exposure time is considerable in comparison to the intense lighting of the object, and one does not see yet the future time when we will be able to make a portrait with the colors of the model.

But the obstacle is overcome which, since such a long time hindered with the physicists. We have seen by full daylight the complete image of the spectrum, and, without forgetting the remarkable results in former time obtained by Mr. Edw. Becquerel, one can state that Mr. Lippmann has discovered the photography in colors.

E. Wallon.

[Translated from the *Génie Civil*, by P. C. D.]

Notes and News.

G. Gentile, editor and proprietor of the *Eye*, thinks that the next Convention of the P. A. of A should be held at Denver. Col.

Catharine Weed Barnes has sent ten prints and seventeen slides to Mr. Steiglitz for the Vienna International Exhibition. Two of the prints are bromides, four platinum, and four albumen silver. All will be sent to Vienna.

Dr. Edward L. Wilson delivered his lecture on the "Taking of Petra," in the Sunday afternoon lectures of the Unity Club, at the Grand Opera House, Cincinnati, March 15th.

From J. Edward Line, of Rochester, N. Y., we have received a very pretty child picture, which has to be seen to be appreciated. Indeed, it is one of the most successful pictures of its kind which we have seen for a long time.

Photographs of some Old People.—A few days ago a photographer at Nazareth, Pa., took the picture of Mrs. Margaret Ehret, 93 years and 10 months old. He also took the pictures of Thomas Dornblazer, 88 years old, at Hecktown, and his wife, 87 years. Another well preserved person is Mrs. Sarah Walker, of Belfast, who is 83 years old, and reads and sews without spectacles.—*Easton Express.*

Maximilian Toch, the talented young editor who has conducted the *Photographic Globe* from its inception, has been compelled by ill-health to give up for the present, and will seek to recuperate his strength in an extended southern trip.

A Successful Picture of a group of beagle hounds who had arranged themselves in an artistic pose adorns THE PHOTOGRAPHIC TIMES of last week. It is a difficult matter to get a group of dogs in a picturesque position. The negative was taken in Berea, O —*New York Times.*

"A Long-felt Want."—The Question Box of a German contemporary contains the following answer: "A book on photographic optics written in popular form does not exist." We are glad to announce that the Scovill Photographic Series is to be increased by just such a book, written by no less an authority than Professor W. K. Burton. The work is already well progressed, and will probably be ready this month.

A Hydrochinon Developer for lantern slides, recommended for the fine color it gives, and called the Gilder developer, is made as follows:—

A

Hydrochinon	100 grains
Phosphate soda	160 grains
Sulphite soda	480 grains
Water	8 ounces

B

Phosphate soda	160 grains
Carbonate of soda	480 grains
Water	8 ounces.

To form the developer add equal parts of A and B to one part of water, though it is generally advisable to begin with less of B than stated.

IDENTIFIED BY HIS PHOTOGRAPH.

New interest has been awakened in the George Booshard murder case.

The identity of the murdered man, it now seems quite probable, will be solved.

Last Friday a Philadelphia lady entered the Coroner's office, at the Court House, to make inquiry concerning her brother, long since missing. There were vague rumors, the source of which could not exactly be located, that he had died suddenly in this city.

His name did not appear on the Coroner's books, as having been the subject of an inquest. The photographs of the unknown men who died suddenly, and from violence, were then produced and the Philadelphia lady looked over them carefully. When she came to the photograph of Booshard she immediately recognized it as that of a man she had often seen, and whose disappearance had for several years been a deep mystery. It was not the portrait of her missing brother, but that of a Philadelphia man, who at one time kept a saloon in that city, near Hughes' planing mill.

The lady said that the wife of the missing saloon-keeper had often talked about the strange disappearance of her husband, and the two ladies felt great sympathy for each other in their similar misfortunes.

On leaving Philadelphia the Coroner's caller had promised to make inquiries also for the husband of her friend.

The Coroner sent the photograph of the man who was known here as George Booshard to the Philadelphia detectives, and expects a reply in a day or two. Deputy Coroner Grant Miller, who talked with the Philadelphia lady, says that she is an intelligent and refined woman, who would not knowingly mislead the officers, though there is a possibility that she is mistaken.

Booshard was stabbed by John Cane, after a quarrel over a game of dice, at the Connellsville Hotel, 109 Grant street, Sunday, December 19, 1887. He died within 20 minutes after the wounds were inflicted. Cane fled, but was captured, tried, convicted of manslaughter and sent to the Penitentiary for 12 years.

"George Booshard," it was always thought, was an assumed name. Notwithstanding the widely published accounts of the murder and the trial, not a word was ever heard from the dead man's friends, or a clew that would lead to his identity. He came to Pittsburgh, representing that he had been for some time in the West. He secured employment as a retoucher in Dabb's photograph gallery, where he was employed at the time of his death. His employer considered him a valuable man in his studio, though he never learned enough about him personally to furnish sufficient data on which to locate his home. "Booshard," as he was known, was about 45 years of age, and in description tallied in many respects with the missing Philadelphian.—*Pittsburgh Chronicle Telegraph.*

Photographic Societies.

DEPARTMENT OF PHOTOGRAPHY OF THE BROOKLYN INSTITUTE.

THE monthly meeting of the Department was held in the music room of the Y. M. C. A. Building, Tuesday evening, March 10th. President Alexander Black presided, and Secretary Gould W. Hart attended to the record. After a short business session President Black introduced to the members Professor Fred. T. Le Boyle, who gave an interesting talk on "The Principles of Art in their Relations to Photography." Professor Boyle outlined some essential principles of art and some of the essential limitations of photography.

The speaker exhibited an ingenious device for demonstrating color values in art, which was studied with much interest by the members.

At the close of the evening a choice collection of lantern pictures were thrown on the screen, the work of R. T. H. Halsey, L. P. Atkinson and other members.

The Department will hold a print exhibition early in April.

THE PHOTOGRAPHIC SOCIETY OF JAPAN.

A MEETING of the above mentioned society was held in the rooms of the Geographical Society, Nishikonyacho, Tokio, on the evening of Friday, 13th instant, Mr. Edmond R. Holmes in the chair. There was a large attendance.

A paper was read by Mr. T. Ichioka on a certain developer that had fallen into his hands. This developer was sold commercially in the form of a bright red solution, needing nothing but dilution with water. It was exceedingly active, and could be used over and over

again. It contained a large quantity of sulphite of soda and some caustic soda, but Mr. Ichioka did not know what was the actual developer.

Mr. C. D. West thought that the actual developer was probably hydroquinone. Either pyro or eikonogen would be detected by the color, in spite of the fact that some dye, probably an aniline color, had evidently been added to the solution, to make it more difficult to guess what it might be made up of.

Mr. W. K. Burton demonstrated the washing of eikonogen that had turned quite black. By the particular method of washing adopted the loss of eikonogen was a mere trifle.

Mr. B. Munster showed some tubes of the new eikonogen developing powder. This powder was found to be quite white, and, when dissolved in water gave a colorless solution. Mr. Munster said that it needed no addition of any kind, and was a most active developer.

A portfolio of prints that had been sent to the society some time ago by Dr. H. P. Emerson, as examples of "naturalistic photography," were handed round for criticism.

Mr. K. Ogawa said that when he was in America he had taken every opportunity of studying reproductions of the work of the French artist Millet, whose pictures he admired greatly. It was evident that Emerson was trying to imitate his work photographically, and, although Emerson's work was far from faultless, it was, Mr. Ogawa considered, a great deal better than what was commonly turned out by photographers, who might study Emerson's work with advantage.

Mr. C. D. West said he thought the greater part of Emerson's work was too black and sooty to be natural.

Mr. J. Milne recognized great artistic merit in Emerson's work, but, speaking not particularly of the specimens shown just now, but of Emerson's work in general, he could not see that it was necessary for a "naturalistic" effect to select, for photography, only such phenomenally hideous figures as were generally to be seen in Emerson's photographs. At least half of them would be arrested on suspicion only on account of their faces if they were seen by daylight. He proposed a vote of thanks to Dr. Emerson, which was seconded by A. J. Hare, and carried unanimously.

Mr. I. Isawa showed some excellent microphotographs, and gave a short description of the means of producing them.

Mr. Kajima Sebi photographed the meeting by flash light.

The proceedings ended with a vote of thanks to the chairman.

During the evening prints made from negatives exposed on the occasion of the flash-light at Kaga Yashiki, by Messrs. Kajima, West and Burton were exhibited.

Record of Photographic Patents.

448,364. Photographic Film. Victor Planchon, Boulogne, France.

448,447. Photographic Copying Apparatus. Soren C. Madsen, Sleepy Eye Lake, Minn.

448,383. Photographic Plate Washing Apparatus. Thomas W. Taylor, Brooklyn, N. Y.

Queries and Answers.

45 THOMAS C., of Mexico, asks if we can give him a formula for toning with chloride of platinum on albumen paper. He adds, "I have several books which say that platinum will give black tones like engravings, but none of them give a formula."

45 Make the solution of platinum chloride in the proportion of 2 grains to 15 ounces of water; neutralize with bicarbonate of soda, and finally add diluted nitric acid, just enough to produce a slight acid reaction.

46 AN AMATEUR PHOTOGRAPHER writes: "(1) Kindly give a few hints on the material used in retouching, and how is it done? (2) What camera is the best for landscape and portraiture, and what lens for the same work? (3) Where can I buy 'Lochman's Dose' and price labels, and what is its price?"

46 *Answer.*—(1) Read "The Modern Practice of Retouching," Scovill & Adams Co., Publishers. (2) The Scovill Revolving Back Camera (see Catalogue, page 30), and the Instantane or Gundluch radid rectigraph lens. (3) Apply to the publisher, C. L. Lochman, Bethlehem, Pa.

47 P. P.—Is there no other way to prepare potassium ferric oxalate than that described on page 72, PHOTOGRAPHIC TIMES, No. 490?

47 *Answer.*—Dr. Eder recommended to mix terchloride of iron with potassium oxalate in certain proportions, and use it as a reducer in combination with hyposulphite of soda. It works very well in that state, but it is not pure enough on account of the chloride of sodium in the solution, if one wishes to crystallize the double salt. The chloride of potassium crystallizes before the ferric double salt, and the result would be a mixture of the two salts at the best. For that reason, and if you wish to make potassium ferric oxalate by this method, precipitate the solution with nitrate of silver, when all the chlorine of the chloride of potassium in the solution will fall down in the form of chloride of silver. Careful filtering and evaporating to the crystallization point will produce the the pure and beautiful double salt.

48 F. S. M. writes: "In toning I am sometimes troubled with a white deposit which settles on the prints and makes them tone slowly and poorly. What makes it? I sensitize paper with bath 50 grains of silver and 30 grains nitrate of ammonium to 1 ounce of solution, and tone with bicarbonate of soda and a pinch of salt. Usually have good luck, only when above occurs."

48 *Answer.*—The addition of salt to the toning bath will cause a precipitation of chloride of silver when the free nitrate of silver has not been thoroughly removed by washing the print in water. If a deposit of chloride of silver settles upon the print toning is very much retarded, and the final result in tone misleads the operator, because the stratum of chloride is immediately dissolved as soon as the print is immersed in the hypo bath. We have never found any advantage in putting salt either into the wash water or the toning bath, but have objected to it for the reasons stated. If you adhere, however, to your old method, we advise to wipe the chloride of silver off the print as soon as its formation becomes perceptible.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

W. I. LINCOLN ADAMS, Editor.

Issued every Friday.
Monthly (unillustrated) edition issued on the last Friday of the month.

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WITH THE BEGINNING OF THE NEW YEAR many photographers contemplate subscribing to a photographic magazine, and sometimes are in doubt as to which one they will choose.

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All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

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When buying photographic cameras, be sure, if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

A GOLDEN OPINION.

"CAMBRIDGE, March 17, 1891.

"I have tried Star Bromide Paper, using the regular iron developer, and find that it works beautifully, is very sensitive, and yields clear pure tones. I especially like the No. 3 grade of paper, the surface is so easy to work upon.

"Very respectfully, M. S. TURNER."

"THE 'Cyclopedic Index' is a most valuable little work that will be appreciated by all. * * * It is not alone a valuable adjunct to the 'Annual,' but, in itself, contains information that every one connected with photography should be posted on."—*The Eye.*

"'The American Annual of Photography' for this year is such a full volume that many will be thankful for the Cyclopedic Index which has been issued as a supplement, at 10 cents. Bound with the volume this additional index will complete a most valuable book of reference."—*The Practical Photographer.*

"I FIND the 'Advill' Camera on my return and like it very much." "N. T. DE PAUW.

"NEW ALBANY, March 17, 1891."

OFFICE OF W. S. BELL & CO.,
PHOTOGRAPHIC ART SUPPLIES, 90 FOURTH AVE.,
PITTSBURGH, Pa., March 17, 1891.

Dear Sir: Owing to the fire of the 11th inst., our place of business, No. 431 Wood Street, was rendered unfit for occupancy. We have secured a temporary location at No. 90 Fourth Avenue, corner of Wood Street, entrance on Fourth Avenue, where we shall be pleased to receive a share of your patronage.

Very respectfully yours,
W. S. BELL & CO.

Studio Changes.

Harrisburg, Pa. John B. Roberts succeeds Hector Kraus.

Ridgetown, Ontario. Mr. Charles Gamble has decided to remove to London.

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BEFORE stocking up for the summer's work try the Chautauqua plate.
MONROE DRY PLATE WORKS, Jamestown, N. Y.

FOR SALE.—Splendid gallery in town surrounded by famous Pennsylvania summer resorts. Catch on for season, $800. PHOTOGRAPHIST, TIMES Office.

FOR SALE—Fine Photograph Gallery. For further particulars address
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TO LET—Old-established Photograph Gallery in Newark, N. J. LOUIS Y. WISS, 755 Broad Street, Newark, New Jersey.

WANTED—Detective Camera, 4x5 preferred. Must be in good condition and cheap. State make and lens.
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SIX OF ADT'S large improved Metallic Retouching Pencils for $1. Ask your dealer for them, or send direct to Adt & Brother, Waterbury, Conn.

DOUBLE SWING.—An 8 x 10 camera, rising front, six double plateholders, with inside kits for plates 6½ x 8½ and 5 x 8, carrying cases for camera and plateholders, for sale cheap. M. A. HELM, Tiona, Pa.

PHOTOGRAPHIC BROKERAGE.—C. M. Brockway would inform all wanting selected photo. goods that he will continue to give his best attention to all orders mailed to his new address—No. 33 Worth Street, New York City.

"CALIFORNIA."—Gallery for sale. First-class, thoroughly equipped. Best location in the city of Santa Cruz. Population 8,000. Only one other Portrait Gallery. Will sell cheap, on account of health. Address F. H. H., care Sam C. Partridge, Photo Supplies, 226 Bush Street San Francisco.

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NOW READY, MORAN'S BARGAIN LIST No. 37, fourteen pages. Look out for it. Send your address and secure a copy. R. H. MORAN,
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(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

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Situation as first-class printer in a good gallery, single man, 22 years old, best of references. Address Arthur M. Westgate, Forrest City, Pa.

Situation wanted as a retoucher. Can operate and print. Good reference. Address "G. R. K.," 27 Gibbs Street, New Haven.

A young lady wishes a situation as retoucher. Would attend to the sales department if necessary. Address H. W. Barton, Station S, New York City.

A first-class general workman wants a situation immediately. Photo, Box 125, Richmondville, N. Y.

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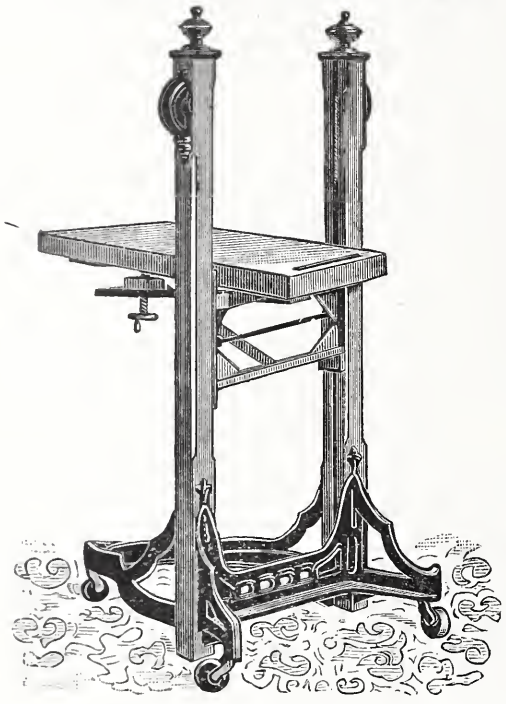
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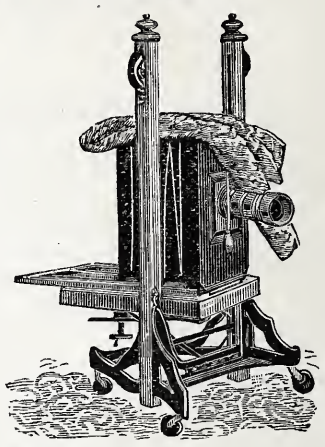
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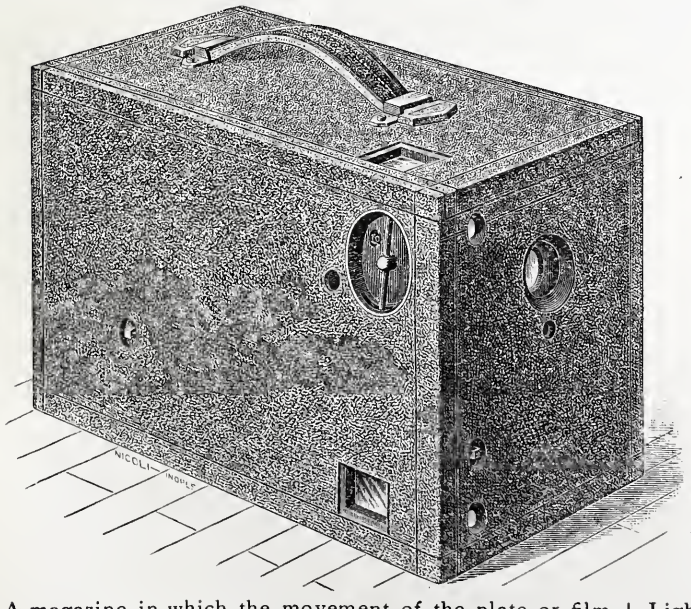
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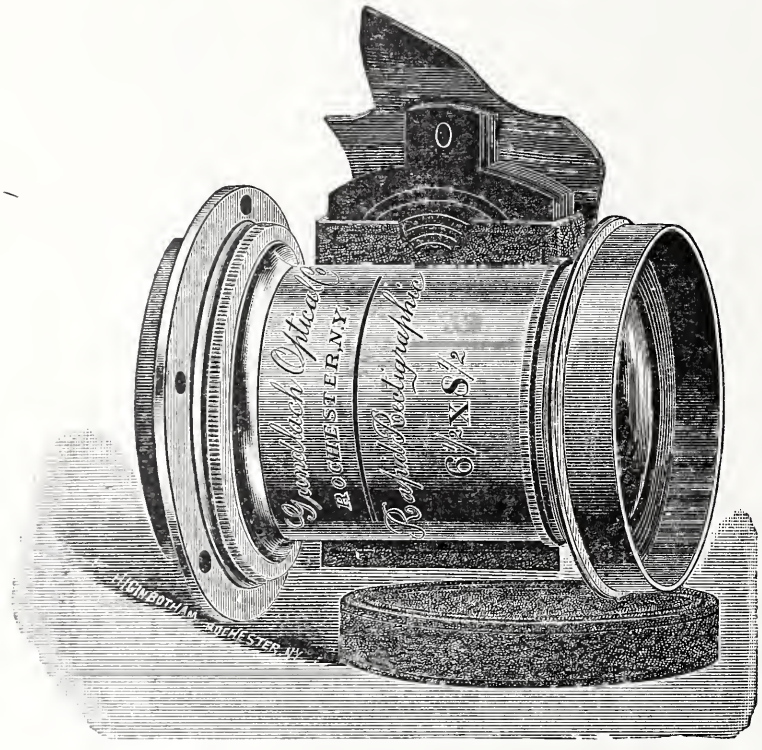
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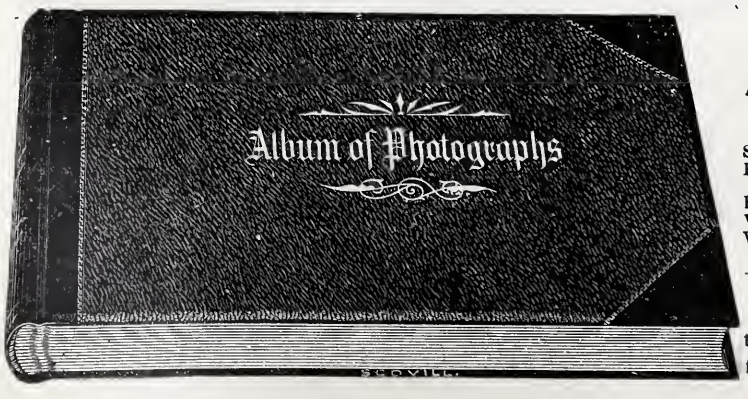
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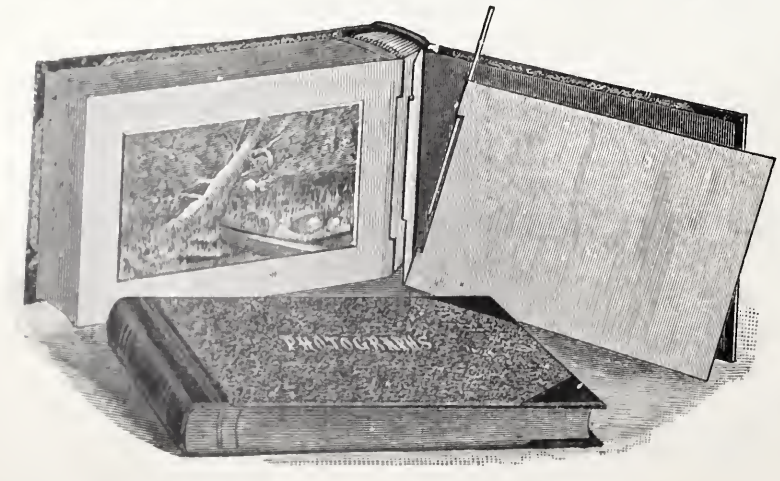


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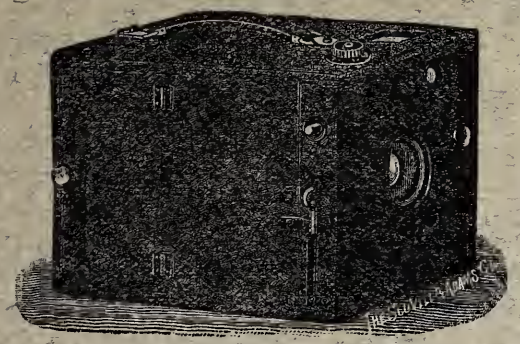
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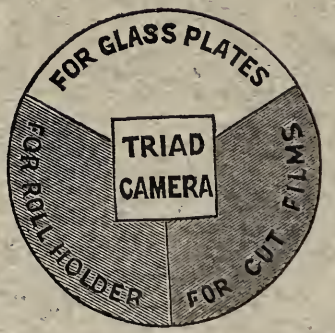
If he is going away for a summer vacation, or for a trip abroad, and expecting to make a large number of pictures, he will procure a roll holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed.

For those who want to use celluloid instead of glass plates, and are not willing to trust to good luck in the exposure of the complete roll of film, we offer with the "TRIAD" camera a *double* film holder which is very light. If the amateur carries six of these holders (loaded with twelve films) he is well supplied for one day; that is, if he is prudent and aims to get only really good pictures. At night, either in a photographic studio or in his own hotel room, the exposed films may be put away into safe receptacles, and another lot of unexposed films substituted for them.

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"That good pasture makes fat sheep"

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THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, APRIL 10, 1891. No. 499.

"THAT GOOD PASTURE MAKES FAT SHEEP."

THE picturesque landscape which serves as a frontispiece to our magazine this week is from a negative by Francis B. Mitchell, an amateur of New York. The "good pasture" belongs to Mr. Mitchell and forms part of his farm at Seneca Lake. The "fat sheep" are genuine Southdowns, and are certainly photographed in very picturesque groups. The black cloud overhanging indicates a thunder storm which was actually threatening when Mr. Mitchell made his exposure.

A wide-angle landscape lens was used, with an "Eagle" plate. The exposure was half a second in duration.

A FEW NOTES ON THE BACKGROUND.

ONE naturally connects together the two words—"backgroud" and "foreground"—with something very like a tacit assumption that, as everything has two sides (even in chewing the inside and outside of a round plum-pudding), so likewise every picture has a background and foreground. This no doubt is true, as a general rule; but unfortunately the assumption is very apt to go too far, and imply that, in all cases, the principal part is the foreground; that all else may be thrown together, as being of little or no importance, and may be covered under the general term "background."

Now it will be found very convenient for the purposes of thought and analysis, if we agree to divide our pictures into two great classes, viz. (1) figure and background; (2) foreground and background.

Under the *first* heading we may include, by the word figure, groups, portraits, still life, etc., and all such compositions wherein the *raison d' être* of the picture is essentially confined to the contents of the foreground. Or to put the same matter in another way, viz., if we removed, omitted this part, would there still remain sufficient interest to make the picture worth securing? In the *second* group of pictures we should include landscape and seacape without figures, etc., or with figures, etc., in a subordinate relation. In this case the chief interest may be in either the near or distant parts of the picture, but usually is found in the immediate foreground.

Somewhere between these two general classes we may conveniently imagine a small group of pictures wherein the interest is not very distinctly located, as, for instance, in many interior pictures, churches, sculpture galleries, and in some classes of natural scenery, such as a winding coast or river, valley, etc. In such pictures it is often as difficult to say where the foreground, middle, and extreme distance begin or end as it is to say wherein consists the chief attraction or area of interest. One may at this point very properly observe that although pictures of this general character are often of great interest to us while they are before our eyes, yet they seldom make any lasting impression, and are not the sort of pictures which we can most easily call up to mind with our eyes shut.

Now to return for a moment to our first group of figure and background. Obviously much that has been already included in the previous notes on the foreground will apply to cases of this general character. The chief things to remember are that the background shall be a BACK ground, and not in any way obtrude itself upon the notice, and that its function is to support and relieve the leading objects. Hence any strongly patterned background is undesirable, seeing that it must detract from the figure or object. On the other hand, the background by being unintelligible, confused or out of focus to an irritating extent, may in like manner carry away much of the attention which properly should be given to the chief object. And once again, although it may not be over strongly pronounced, nor even irritatingly confused, yet by

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reason of its unfitness it may become a source of distraction. The great laws of (1) subordination of parts and (2) harmony or fitness will therefore apply with full force to the selection of a background. Such incongruities as a lady in full dress or gentleman in boating costume accompanied by a distant view of snow-clad mountains are, it is to be hoped, things of the past. But, alas! the lace curtain with mind-bewildering pattern, and Japanese umbrella with its almost countless radial lines, shall survive in some studios, and much to the detriment of the heads placed before them. The opposite extreme of the perfectly flat background, while being free from some serious objections, yet draws attention to itself, for the simple reason that it represents or corresponds to nothing in nature. An evenly painted wall in an ordinary room nearly always shows some gradation of lighting, according to the position of the windows, etc., and moreover the examples of all painters of repute show a general agreement in preferring a graduated background to one of even and flat tone.

As regards the out-door background—using the term for the more distant parts of those nature studies that we usually speak of as land or seascapes—it is again manifest that the law of subordination or principality is our guiding light. If the interest is to be concentrated in the nearer parts—*i. e.*, foreground—then care must be taken that the more distant parts shall melt into and belong to the foreground; but always in such a way that any interest or attraction they may possess shall be quite subordinate to the foreground. This applies with full force to the sky and clouds, a matter deserving of much more attention than it generally obtains, especially from those who have a few pet cloud negatives which they love to repeat again and again. On the other hand, where the interest is chiefly concerned with the more distant parts, or it may be in the sky, *e. g.*, a sunset effect, then the nearer parts must be unsparingly pruned of any thing or part which is calculated to do otherwise than lead the eye up to the area of chief interest. To those who have not given much thought to this matter it will be a very profitable experiment to notice the important changes we can make in the foreground by the simple expedient of raising or lowering the camera. Out of every hundred outdoor photographs an average of about ninety-nine are taken with a lens at a point distant from the ground approximately equivalent to that of the eye of a *standing* figure, while about the same number out of every hundred *paintings* are made by a person *seated* on a chair, or still more frequently on a stool which is usually somewhat lower than an ordinary chair.

It will surprise the tyro to find what a vast difference this matter (*i. e.*, point of view) makes. Let him observe the effect of gradually lowering the eye, in the case, for instance, of foreground reeds along a river bank.

Furthermore let him notice how lowering the point of view compresses the foreground area on the plane of the picture, and also how a few foreground objects, (*e. g.*, the above mentioned reeds) assist in *placing* the distance when they come up clear against and stand out against and relieved, as it were, by the softer tones of the more distant parts.

Finally, with regard to those pictures wherein our object is to *spread* the interest, we shall do well to lay stress upon the idea of continuity.

First, with regard to out-door scenes, our end is more likely to be gained by taking dure care that the eye perceives no disagreeable breaks; but on the contrary, passes agreeably from point to point with *continued* interest.

The same idea prevails with many interior studies, wherein the mind agreeably follows the eye with an evenly flowing interest, as point after point comes under notice—as, for instance, in the elaborate carving of architectural decoration.

Secondly, under the general head of groups the photographer meets with a problem which demands a full measure of his best attention. How seldom do we see a really artistic group, and yet *when* the problem is successfully met how full of interest the whole picture is. Two great faults seem to run through the majority of failures.

On the one hand we have a painful monotony—all the figures in the same or *very* similar position, and perhaps equidistant; the usual form reminding one in a painful way of the opening chorus of a Christy minstrel troup.

On the other hand we have the every-man-on-his-own-hook system and no-connection-with-any-other-party-in-this-picture general expression.

Now on examination of the pictures of successful painters of groups it will very frequently be found that a ground plan of the position of the various members of a group usually reveal some form of contiuous curve, often the oval or ellipse, but sometimes a spiral, so that the spectator may imagine himself passing from point to point and exchange a word with each without ever forming one of a divided party.

While some one or more members of the group should from the main stem, as it were, of the family tree, great care should be taken that all the others

are either linked directly to the most important figure or are connected with each other. The great ideas in group are: 1, subordination (but not very marked); 2, symmetry (concealed); 3, continuity (unmistakable); 4, variety of pose; 5, a *slight* general resemblance of pose (but only in a remote degree).

I make no excuse for calling attention to the central group of seated figures in the Eastern Frieze of the Parthenon, now that reproductions or illustrations of this masterpiece are to be found in every museum or library. Here we have a group of some dozen figures seated—grouped and connected with a measure of skill that would have been pronouneed impossible had it not been already done—a couple of thousand years ago.

F. C. Lambert.

THE TONING OF PHOTOGRAPHS CONSIDERED CHEMICALLY, HISTORICALLY, AND GENERALLY.

Chapter II.

Talbot and Hunt on the Toning of Paper Prints.

Fox-Talbot upon the Color of Photographs upon Paper in 1844.—The workers in the very early days of photography—say from 1839 to 1850, or thereabouts—were too pleased to be able to get any pictures at all upon paper by means of the agency of light, to trouble much about their *color*.

The first published photographs were contained in a book issued by the discoverer of photography upon paper—Henry Fox-Talbot—in 1844, and designated the "Pencil of Nature." This book, now very rare, contains twenty-four prints of whole-plate size. The following remarks, extracted from this valuable book, show the opinions as to the color of photographic prints held at the time when our science was still an infant:

"There is one point to which I wish to advert, which respects the execution of the following specimens. As far as respects the design, the copies are almost fac-similes of each other, but there is some variety in the tint which they present. This arises from a two-fold cause. In the first place, each picture is separately formed by the light of the sun, and in our climate the strength of the sun's rays is exceedingly variable, even in severe weather. When clouds intervene a longer time is, of course, allowed for the impression of a picture, but it is not possible to reduce this to a matter of strict and accurate calculation.

"The other cause is the variable quality of the paper employed, even when furnished by the same manufacturers. Some differences in the fabrication and in the sizing of the paper, known only to themselves, and perhaps secrets of the trade, have a considerable influence on the tone of color which the picture ultimately assumes.

"These tints, however, might undoubtedly be brought nearer uniformity, if any great advantage appeared likely to result, but several persons of taste having been consulted on the point, viz., which tint on the whole deserved a preference, it was found that their opinions offered nothing approaching to unanimity, and therefore, as the process presents us with a variety of shades of color, it was thought best to admit whichever appeared pleasing to the eye, without arriving at a uniformity which is hardly admissible."

Of the twenty-four photographs (whole-plate size) contained in the copy of the "Pencil of Nature," which now lies before us, we find that only two—and these the first and the last—have faded so completely as to leave only faint yellow outlines of their originals. The others have all faded more or less, and the fading has proceeded regularly from the margins to the centers, so that in some cases only a small patch in the middle of the print remains unaltered. The color, where unfaded, is invariably a kind of bistre, or reddish-purple. All the prints are, of course, on plain or matt surface paper.

Robert Hunt Upon Toning, 1841-1857.—Robert Hunt (born 1807, died 1887) was one of the most prolific of the early writers on photography. His book entitled "The Art of Photography," which was published in 1841, is, indeed, the earliest manual on the subject by any English author, and is only preceded by Daguerre's "Manual of Photogenic Drawing" (1839). In this first book of Hunt's the entire subject of positive printing on paper sensitized with silver chloride is dismissed in less than two pages, and there is no allusion to "toning," either of paper prints or daguerreotypes.

What was virtually a second edition of this work was published by Hunt as a "Treatise on Photography" in 1851. In this, Fizeau's method of toning (Hunt calls it "fixing") daguerreotypes is described on page 172. The chloride and other salts of gold are mentioned in this edition; but (except for daguerreotypes) no reference is made to their use as toning agents.

The only toning agent with which Hunt was familiar at this time (1851) was evidently *sulphur*. Speaking of positive prints on paper, after fixing, he says (page 81): "In these pictures there is a curious and beautiful variety in the tints of color they will occasionally assume, varying from a rich golden orange to purple and black. This effect depends in a great degree upon the paper itself; but it is modified considerably by the strength of the hyposulphite, the length of the time exposed to it, by the capacity of the paper to imbibe it, and partly, perhaps, by the nature of the light. Warm

sepia-colored pictures may generally be obtained by drying the paper, by pressure, and making it imbibe the hyposulphite supplied in liberal quantity."

In speaking of positives on porcelain (page 100) Hunt writes: "The picture is then well washed and dried, and if the tint acquired by it is not pleasing to the eye, a slight exposure to the vapors of sulphureted hydrogen will restore to it an agreeable brown or sepia tint." As explained in the chapters upon "Fixing,"* the sulphide of silver (formed by the combination of silver and sulphur) is a compound whose color varies from black to yellow, and changing in time from the former to the latter hue. Its presence, or that of hypo, in the print, is most deleterious—a fact of which these early photographers were evidently quite ignorant.

The third edition of Hunt's book (published early in 1853) contains an extract (page 215) from a French treatise on photography written by Gustave Le Gray, in which the first mention of gold as a toning agent for paper prints is to be found:

"Dissolve in a bottle hyposulphite of soda, 1,500 grains, filtered water nearly a quart.

"In another bottle dissolve 75 grains of nitrate of silver in a wine-glass or two of water; when well dissolved, you add to it a saturated solution of chloride of sodium, until the white precipitate ceases to fall; allow it to repose a short time, and then decant the clear liquor, and gather the precipitate of chloride of silver, which you dissolve in the other bottle of hyposulphite of soda. By means of this solution you obtain directly black tints upon the picture. The older the hyposulphite of soda is, the better.

"By leaving the proofs a longer or shorter period in the (hypo) bath, you can obtain the tints from the red to the black, and clear yellow; with a little practice you will be sure to get the tint you desire. You must not leave a proof less than an hour in the bath for it to be sufficiently fixed, and it can remain three or four days to obtain the sepia and yellow. By heating the hyposulphite of soda I accelerate the operation; but we must not then leave the proof for an instant to itself, as the rapidity of action is so great that the picture might be completely effaced.

"By adding to the preceding solution about one fluid ounce of liquid ammonia, I obtain pretty bister tints and very pure whites.

"I also obtain fine velvet-like tints by putting the photograph (when taken out of the hyposulphite of soda) upon a bath of a salt of gold, using 15 grains of the chloride of gold to 1½ pint of distilled water.

Fine yellow tints are obtained by placing the proof (if too vigorous) first in a bath of hyposulphite, and then in a bath composed of 1½ pint of water, and 1½ fluid ounce of hydrochloric acid."

Gustave Le Gray was a famous French photographer. His book entitled "A Practical Treatise on Photography upon Glass and Paper" is said to have been first published in France in 1849. It was translated into English by Thomas Cousins, the English editions appearing in 1850, 1852, and 1856. The above quotation appears to be from the (English) second edition; and it illustrates the junction of the old method of sulphur toning (by means of an old or acid hypo bath), with the gold-toning process which was shortly to displace it.

The fourth edition of Hunt's book appeared in 1854. The extract from Le Gray is reprinted, with the following paragraph (by Hunt) appended to it: "Experience has shown that, however beautiful may be some of the tones given to a photograph by the methods recommended by M. Le Gray, these are obtained with some sacrifice of permanency. Many choice productions prepared by this photographer, which I have had for but a few months in my possession, are showing indications of decay; the change taking place first at the edges, and gradually creeping over the whole picture."

In the fifth (and last) edition of Hunt (1857) the word "toning" appears for the first time in the index; but it is, alas! "toning with hyposulphite of soda." Hunt, however, only mentions the process to discard it. He writes (page 53): "Much has been said and written about improving the *tone* of the picture by the use of *old* hyposulphite of soda, and of the hyposulphite in which chloride of silver has been dissolved. My own experience, which is corroborated by that of many of the most successful photographic artists in England and on the Continent, convinces me that in aiming at peculiarity of tint by these methods the permanency of the photograph is injured. I have pictures, produced by different artists, fixed after this method, and scarcely one of them remains free from change. * * * If the photographs are *toned* with gold instead of sulphur, photographs are as permanent as water-color drawings."

Unfortunately, however, Hunt gives no further directions as to how this "toning with gold" is to be accomplished. But up to the time when the last edition of his book appeared, the printing of positives on paper had but a limited application. The daguerreotype process held sway from 1839 to 1851, and when it was displaced it was by the collodion process, in which the pictures were *developed* as positives on glass plates, and toning was not required. It is curious that the color of the image of a *developed* print is usually so very different from that of one *printed out* by exposure to sunlight. The tone in the former case is blacker and more satisfactory to begin with, and it does not change to red after fixing in hypo, as is the case with "printed-out" pictures. The reason for

* Photographic Times for 1890.

this is again doubtless to be sought in the fact of the silver being deposited in a different state of molecular aggregation.

W. Jerome Harrison.

(*To be continued.*)

ELECTRO-CHEMICAL REVERSALS WITH THIO-CARBAMIDES.

[From advance proofs of the *Journal of the Photographic Society of India*, sent "with Colonel Waterhouse's compliments."]

In the course of my experiments on photographic reversals with thio-carbamides, it struck me the complete reversal by transfer of deposit from the exposed to the unexposed parts of the photographic image must be more or less connected with, if not caused by, some electro-chemical action, and that if this were the case, it might be possible to obtain similar reversals by means of an electric current passed through the developer.

Becquerel showed several years ago that if two silver plates coated under similar conditions with a haloid silver salt and arranged so as to form part of an electrical circuit, are immersed in a suitable conducting fluid, the action of light falling upon one of the plates only and not on the other is accompanied by distinct electrical action. Professor Minchin has quite recently found that the same rule applies to silver plates coated with emulsions in gelatine or collodion of haloid silver salts and immersed in very weak solutions of alkaline chlorides, iodides or bromides. It may, therefore, be taken for granted that the action of light upon an ordinary gelatine-silver-bromide dry plate is accompanied by more or less electrical action, and it did not seem necessary for the present purpose to repeat these observations.

The next thing to ascertain was whether during the process of development there was any similar electrical action between an exposed and unexposed silver-bromide film sufficiently strong to be detected with a galvanometer. Several attempts were made in various ways with this object, but unsuccessfully, partly owing to the want of a sufficiently sensitive galvanometer. It only remained to try the effect of passing an electric current from a galvanic cell through developers made up with and without thio-carbamides, and the apparatus was being got ready to do so when the *Photographic News* and other journals, received by the mail of the 23d January, brought out the accounts of Professor Minchin's very interesting and important experiments in photo-electricity. From these I found that he had to some extent anticipated me by his discovery of the fact that if silver plates coated with a silver-bromide emulsion are attached to the poles of a battery, and half immersed in a weak solution of potassium bromide, the film attached to the carbon pole was visibly blackened on its immersed part, while no visible effect was produced on the other; but on developing this plate with pyrogallic acid and ammonia its immersed part also became dark, exactly as if it had been exposed to light for a few seconds.

From this result it seemed probable that my own proposed experiment would succeed. It had been intended to use platinum plates for the electrodes, as recommended by Becquerel in carrying out the photo-electrical observations above referred to; but as pure silver plates were available to hand, and Professor Minchin's observations showed that they would answer as well, at any rate for the purpose proposed, they were used instead, but the experiments should be repeated with platinum plates also. The silver plates used were about $1\frac{1}{2}$ inches wide and 4 inches long, and fixed by means of a block of varnished wood at a distance of about $\frac{2}{3}$ of an inch apart. They were marked in asphalt varnish with **C** and **Z** respectively, so that in those parts the electrical connection between the silver plate and the silver-bromide film was cut off.

The developer generally used has been the same as for the photographic reversals, viz., eikonogen-soda (Nicol's formula) or eikonogen-lithia, both with sodium sulphite, as given in previous papers on these reversals; also ferrous oxalate, slightly acid and with a little bromide added. The developers were contained in small vertical glass cells. The battery used was a small bichromate-cell (bottle). A tangent galvanometer (Government Telegraph pattern and far more delicate than the one first used), for the loan of which I am indebted to Mr. E. Dowson, the Government Electrician, was included in the circuit.

I have tried gelatine-silver-bromide films and Eastman's bromide paper in contact with the silver plates, and with all of them have obtained reversed deposition when using an eikonogen developer containing thio-sinamine, but the most decided result, and one which is also quite in accord with Professor Minchin's observations, was obtained with silver plates treated with bromine water.

A pair of such plates marked **C** and **Z** and attached to the carbon and zinc poles of the battery respectively, were immersed in a plain eikonogen-soda developer. A second pair of plates, marked $\frac{C}{TS}$ and $\frac{Z}{TS}$, were immersed in some of the same developer to which about 5 drops each of a saturated solution of thio-sinamine and of potassium bromide

at 10 per cent. had been added, or about the same proportions as used for the photographic reversals. The film sides of the plates were placed inward, face to face.

After immersion, in connection with the battery, the plates were washed and fixed as usual. The immersions and passage of the current were in all cases carried on in the dark room, and thus the results are in no way *photographic*.

The C plate shows fairly clear of deposit, but is slightly blackened, especially where the plate has been slightly dirty; the top immersion edge is darker, as with reduced silver. The immersed part of the back of the plate is darker than the front, and also has a black edge at the top.

The Z plate shows a very strong dark deposit all over, with a clear line at the top. The varnished Z does not seem quite free from deposit. The back of the plate was also quite dark with deposit. This strong deposit on the face of the Z plate accords with Professor Minchin's observation that the film in contact with his similar plate attached to the zinc pole was developable, though it had no visible action upon it, being only immersed in potassium bromide solution.

Of the other two plates, $\frac{C}{TS}$ shows a strongish black deposit with a denser black line at the top and then a clean band above. The back of the immersed part is very black, with a light line above.

$\frac{Z}{TS}$ is almost quite clear on the face and free from deposit, showing only a slight discoloration or tarnish, with no deposit on the varnished Z; a clear band at the top of the immersed surface; the back of the plate more strongly tarnished than the front, with a slight powdery deposit.

It will be seen that the results in the two cases are quite different, and may be represented by C and Z in the case of the plain developer, and by $\frac{C}{TS}$ and $\frac{Z}{TS}$ in the case of the developer with thio-sinamine—the black letters representing deposit, and the open ones freedom from it.

Similar results were obtained with bromide paper and gelatine dry-plate bromide films, but it may be remarked that, whereas the C plates show with both developers a clear image of the varnished C surrounded with more or less dense deposit (much denser and yellower with the thio-sinamine), the Z plates show a difference, those coated with gelatine films immersed in the plain developer showing a dense deposit with a clear Z, while with the thio-sinamine developer the Z is shown dark on a clear ground. With bromide paper the effect of the plain developer on the Z plate was not so marked as with gelatine films, but these observations require repetition, the films being tender and easily washing away.

Ferrous oxalate developer does not seem to give such marked reversals—at any rate, with bromide paper—as eikonogen does, and this agrees with the photographic results. With the gelatine films, it was noticed that in the plain ferrous oxalate developer the Z plate darkened first, and with the thio-carbamide the C plates blackened first, and most strongly.

The developers do not appear to increase the resistance of the current very much.

It may be noted that pencil marks made at the back of the papers were found to be reproduced very strongly on the film side in contact with the silver plates, especially on those treated with the thio-sinamine developer.

Having obtained these results with bromized silver plates, a further trial was made with similar plates to see if a current could be detected between an unexposed and an exposed plate in the developers alone, without the aid of the battery; and this time with a more successful result. The plates were, as before, treated with bromine water, washed and dried. The developer used was made up of one part each of eikonogen and lithium carbonate with two parts of sodium sulphite in 100 parts of water. One plate having been exposed to a weak yellow light, the plates were attached to the poles of the galvanometer, and the unexposed plate immersed in the developer. On dipping the exposed plate the needle at once deflected some 10 degrees, but quickly returned to zero. With another pair of plates immersed in some of the same developer to which five drops each per ounce of thio-sinamine solution and of potassium bromide at 10 per cent. had been added, a similar deflection was observed, but the needle remained for some time at 5 degrees, and only slowly returned to zero.

It may be noted that, after fixing, the exposed plate of this last experiment showed a black deposit with a dark line at the immersion edge. It showed little or no tarnish, and in most respects corresponded with the $\frac{C}{TS}$ plates of the experiments with the battery.

The unexposed plate, on the other hand, showed a very considerable yellow tarnish, stronger on the back of the plate than on its face, and no marked line at the top immersion edge. Generally, it corresponded with the $\frac{Z}{TS}$ plates of the battery experiments with the thio-sinamine developer.

The two plates used with the plain developer show very little difference. There is deposit on both, but the exposed plate shows a light line on

the immersion edge and the unexposed one shows a black line.

On repeating the experiment, but with the plates attached to the wooden block, so that they were immersed together, it was found that with the plain developer no distinct current was produced on immersing the plates, or afterwards, though there seemed to be very faint indications of a current, which might be visible with a more delicate galvanometer. With the thio-sinamine developer, however, although there was no immediate deflection, the needle slowly turned in the same direction as before to about 5 degrees, remaining there for some time, and then again slowly returning to zero. This action seems to correspond with the gradual change of the photographic image under the thio-carbamide developers.

On repeating this experiment with a fresh pair of plates, in fresh developer containing only 1 per cent. of sodium sulphite and about five drops to the ounce of an alcoholic solution of Professor Reynold's compound salt of thio-carbamide and ammonium bromide, exactly the same result was obtained.

The strong initial deflection of the needle when the plates were immersed separately appears to be due to polarity, and was noticed by Becquerel. On immersing two *unexposed* plates separately in the same way in plain developer a similar deflection was observed, but very much stronger.

These results cannot be taken as conclusive, and a great deal of further investigation is necessary with other developers and thio-carbamides, as well as with other silver haloid films used with and without the silver-plate conductors. The products formed at both poles by the electrolytic decomposition have also to be examined.

As far as the experiments go, however, they seem to show—

1. That the same kind of reversal of the deposit on silver bromide films can be effected by a developer containing thio-sinamine, both electrically and photographically.

2. That the reversal of the photographic image on such films by thio-carbamides is to a great extent, if not entirely, due to electro-chemical action.

3. That the development of the photographic image on silver bromide films is accompanied by electro-chemical action.

Taken in connection with Professor Minchin's recent observations and the earlier ones by Becquerel and others, they appear to point to the conclusion that photographic action, at any rate, as regards the haloid salts of silver, is influenced by electricity, both in the action of light upon the silver haloid film as well as in the development of the invisible image so produced, to a very much larger extent than has usually been recognized. This aspect of the theory of photography appears to have been somewhat neglected, but it seems likely that further investigation in this direction would be rewarded with valuable results, and throw some new light on the mystery which still surrounds the formation and development of the invisible photographic image. *J. Waterhouse.*

P. S.—Further observations made with silver plates coated with a film of precipitated silver bromide in pairs of one exposed and one unexposed plate, connected with a very delicate suspension galvanometer, showed not only a distinct electric current between the plates immersed in the plain eikonogen-lithia developer, but a reversal of the current with plates immersed in some of the same developer to which five drops per ounce of the compound salt of thio-carbamide and ammonium-bromide had been added. With the ordinary developer the exposed plate forms the negative pole of the circuit, whereas with the thio-carbamide developer it forms the positive pole. The same rule has been found to hold good with thio-sinamine. With the thio-carbamide developers the current is more powerful than with the plain developers. Further experiment is, however, necessary with other plates to confirm this reversal of the current, which seems highly probable and was to have been expected. *J. W.*

A PHOTOGRAPHER'S DREAM.

(*Continued from page* 164, *and concluded.*)

Now I'll show you the self-righteous—they are a nice lot, great fun"—and there appeared numbers of people who seemed to be carrying bags of treasure, heavy sacks and wallets, and who were very much in haste, though they did not seem to get anywhere in particular, but had an air of great importance. They were very ragged, a fact of which each was aware as regarded his companions, of whose company he seemed ashamed, but ignorant as regarded himself. When one of them seemed very heavily laden, one of the little guardians would make him put his sack down, and showed him that it held nothing but stones and rubbish. Nevertheless, he shook his head and took it up again. Harry here caught a glimpse of some one who looked very like himself, and protested that he had seen sinners enough, but begged to know how they managed the animation

of the tableaux. "Oh," replied Satan, "that is one of the inventions I have in reserve; there are two or three more military contrivances I have to bring out yet, murderous things—oh, so jolly!—and then I shall turn my attention this way. This is a combination of the telephone and psychograph. You see, I just have a set of wires laid on from my headquarters, and apply the lower end to the peep-hole, where I look in to see that things are going on all right, and you see it comes to the slide of the lantern and vision is continuous. When I am ready I shall send it up to one of your inventors to work out. But you want to see something else. Here's what you are all crazy about—photographs in natural colors," and he laid a portfolio of views before Harry. "There's an invention which will make the man who gets it immortal: if you like, you're the man. I've got it it all cut and dried sure fire. We'll make the bargain now if you are willing. You just sign this"—and he took a parchment out of his coat-tail pocket—"and we'll go into the manipulations at once." Harry glanced at the document and saw enough to understand that he bound himself to obey all orders, whatever they might be, so long as they were legal. He shook his head, for he knew that some legal things were just what pleased the Devil most; but he felt tempted. "We'll try one if you like," said the Devil, "right away. Of course they're positives, and I don't mind telling you so much as that the paper is prepared with subsulphide of a metal the discovery of which I reserve for the man to whom I concede the process, which I shall propose to call pandium, after my dear and departed friend the god Pan, the connecting-link between the three worlds." Harry was mentally wondering how it happened that the Devil had so much to do with photography, and must have been thinking aloud, for His Majesty replied immediately: "Oh, you see, all these things that help make men look exclusively to the material world are under my jurisdiction. It was I who brought science into existence when I tempted Eve with the fruit of the tree of the knowledge of good and evil; and chemistry is my specialty, but photography is my delight. You see, when people once come to prefer hard facts to real truth, it becomes very easy to make them confirmed materialists. There's no nonsense, to my mind, like the ideal; it keeps a man's mind on the strain for something better than there is, so that I have been these three hundred years hard at work materializing art, and I've got it down to a pretty fine point now, for the camera does the most of the artist's work. I am still a little bothered with the color operations, but when the right man comes along that will be easy. I must have a little help from you men, that is the only difficulty; if I could get along without you heaven would have been an empty place, but I can only do half." He rattled away, so as to give the young man no time to reflect, and opening the cupboard where the operations were performed, invited him in. It smelt of brimstone dreadfully, which the Devil accounted for by the subsulphide, and he showed Harry a bath on which the paper was to be floated; showed him a sheet of the prepared paper and how to float it, volubly making all sorts of explanations all the time, so that Harry found himself almost in the act of floating the paper before he remembered that it was Sunday. He stopped, dropped the sheet, and looked around for the door, for he became conscious at length that the Devil was after him. But the door was not to be seen, and as he demanded imperatively to be let out, for he would have nothing to do with the matter, Satan changed his manner and caught him by the coat collar, saying, "But you don't get away from me so easily; you can't fool the Devil like that; if you won't work you shall pay toll. I don't lecture for nothing; I'll float you instead of the paper." Saying which, he hoisted him up to the bath and plunged him in up to the throat. It was boiling hot, and Harry shrieked at the top of his voice, and prayed as he had not done for years; and, shrieking, woke, as his old mother ran in to see what was the matter, calling, "What on airth's the trouble? One would think you's possessed!" Luckily it was summer-time, and Harry caught no cold, for he was in such a perspiration that he had to get up and mop himself ten minutes before he could go back to bed again.

W. J. Stillman.

Correspondence.

HOW TO DRY FILMS.

To the Editor of The Photographic Times.

Dear Sir: The following may interest those of your readers who "pull the string or press the button, and then do the rest themselves."

How to dry films.—Procure a piece of clean *pine* board wider than the negatives are long, say 6 inches wide for 4 x 5 films, cut it any convenient length from 3 to 4 feet is a handy one. Put in two screw eyes in one edge to hang up by. Pin the negatives to this board by sticking a pin in each corner.

The writer made a board like the above and coated it with yellow shellac varnish so as to be nice looking and easily kept clean, but to his surprise he found the backs of the films quite wet after two days' absence—cause, waterproof board. With soft unvarnished pine, the water on

backs of negatives is absorbed by the wood, and the drying is nicely done.

Truly yours,

Thomas J. Bray.

WARREN, Ohio, February 14, 1891.

EARLY PHOTOGRAPHERS OF LIGHTNING.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: In your last issue is a note about early photos of lightning being made in 1877 by an Englishman named Sarman, and another one made fifteen years before that date by Guenther, of Berlin. Permit me to add a much earlier date than these. While in Cleveland, and transacting some business with Mr. J. F. Ryder, photo artist, I had occasion to visit Chicago, Ill. This was in 1856. I had to call upon Mr. Hestler, then proprietor of one of the leading galleries in that city. During my visits to his place I observed hanging upon the wall of his reception room a large daguerreotype plate of lightning, framed. My recollection of it now is that it was taken by himself, remarkably clear and distinct, and one which I have never since seen surpassed nor even equaled. How much earlier it was taken before I saw the picture I have forgotten. Mr. Hestler is, I think,

"Above ground still,
Revisiting the glimpses of the moon,"

and doubtless he will tell us if called upon.

Respectfully,

Chas. Fontayne.

PASSAIC, March 3, 1891.

Notes and News.

It is reported that Queen Victoria has sent two photographs of herself to the lepers upon Rotten Island near the Cape of Good Hope. Does she expect that her portrait will cure the leprosy?

It is rumored that a New York State organization of photographers will be formed, and that a meeting will be held this summer. Further particulars will be given later.

The New England Magazine, for March, contains an article on photographic illustration of poetry, by William H. Downs, illustrated by the prize winners in the P. A. of A. grand prize competition. They include the "Evangeline" pictures by Rösch, of St. Louis, and the "Enoch Arden" pictures by Hastings, of Boston.

Sheen & Simpkinson, dealers in artist and photographic materials, at Cincinnati, have dissolved partnership, Mr. William A. Simpkinson succeedes to the photographic department of the business, which he will conduct as heretofore at 166 Race Street, Cincinnati.

A. M. Knowlson, the enterprising photographic merchant, of Troy, N. Y., has fitted up with a full stock salesrooms on Broadway, where he has also a convenient dark room for the use of traveling photographers. We recommend our friends who may be in that city to make Mr. Knowlson a call.

From Chicago we hear that, beside the Blair-Anthony Combination, Sweet, Wallach & Co. have made another addition to their business. Having purchased the business of Smith & Patterson, they have now bought the entire stock and good will of N. C. Thayer & Co.

The Douglass & Shuey Co. have completed their organization by electing directors, officers, etc., and will be in their new store, at 111 State Street, at an early date.

George G. Rockwood, the photographer, has completed his new gallery, on the ground floor, No. 1440 Broadway. The spacious store, reception room and studio are all on the same floor, and there is also an additional skylight for children's pictures.

Fire.—Fire was discovered at 1 P.M. March 28th, in Jones's photograph gallery, 194 Court Street, Brooklyn, a one-story structure, adjoining the old Wyckoff mansion, known as the Piper Club-house, the headquarters of the South Brooklyn Turn Verein. The gallery and the club-house are frame structures; but though the photograph gallery was totally destroyed, the firemen saved the club-house, with a loss of about $1,500. Mr. Jones's loss on his gallery is $900. The stained-glass windows on the south side of St. Paul's Church were slightly damaged.

To Teach Photography.—Dr. Anderson has given 120 acres of land near the Natural Bridge, Virginia, for the site of an art institute, and $50,000 has been subscribed for the building. There will be a photographic department, under the instruction of Mrs. Janette M. Appleton, of Boston. Mrs. Appleton has won the name of being the leading lady amateur photographer of New England.—*Daily Exchange.*

McKinley at the Photographer's.—TO THE EDITOR OF THE EVENING POST:

SIR: I went to Fredericks, the photographer, this morning, to have some duplicate photographs made from my negative. The card bearing my number said: "Duplicates, $3 per dozen." The clerk said: "We charge $4 per dozen now." "Why?" I asked. "Because the duty on paper has been raised." "McKinley Bill again?" "That's about the size of it," he replied. C.—*New York Evening Post.*

An Interesting Fact.—Said a bank note engraver to a New York *Sun* man: "First impressions are not always to be trusted. Sometimes a photograph of a bank or railroad president comes in, and at the first glance the face is attractive. But on taking its lines to the plate, day after day, a different feeling rises up. Long and close inspection detects the man a sneak, or a bully with a varnish, or a chap who would do anything to gather dollars. Then, again, a hard, homely face comes along. The introduction is not pleasant; but, as it keeps itself before you for a fortnight or so, the features grow friendly and show a man to tie to. Yes, engraving a man's picture is a good deal like knowing the man himself. Intimacy brings out the truth about him."

Some Old Slides.—At the meeting of the Photographic Section of the American Institute, held Tuesday evening, April 7th, Vice-President C. Van Brunt exhibited a series of European slides by Ferrier, the Senior—albumen process about thirty years ago; also American slides, similar process, of about same date; to be followed by recent slides, gelatine process.

Wonders of the Camera.—At a recent lecture before the Royal Institution, England, the lecturer, after referring to a series of photographs of animals in motion which had been taken by means of a movable shutter, said that rapidly occurring phenomena might also be photographed by the exposure of the lens to a flash of magnesium light or to the electrical spark. After stating that neither of these flashes of light was absolutely instantaneous, he proceeded to show their actual duration.

It appears that a spark from a Leyden jar lasts less than one twenty-five millionth part of a second. Some idea may be formed of such a duration by considering that it is nearly the same fraction of a second as one second is of a year, as a year contains, roughly, twenty-five million seconds. It was further shown that a soap film might be photographed in the act of breaking, but as this occupied less than one-tenth of a second it was more difficult to photograph than jets of liquid.

A dry shot would pass through a soap bubble without breaking it, but a shot wetted with alcohol would break the film at once. By means of the dropping of weights suspended from an electro-magnet it was possible to make the breaking of the film and the flash of the spark simultaneous, and thus photograph the film in the act of breaking.

Among the many recent triumphs of photography were cited those in the medical field, especially the invention which enabled the operator to photograph the throat and vocal chords. Professor Levison had devised a condenser condensing ten inches of solar rays on to a one-inch beam of parallel rays, which brought down the question to the matter of a special camera.

This was afterward devised and the operation was perfected. A beam of condensed light is now reflected from a glass bound on the operator's forehead into the patient's mouth, and a tiny detective camera snaps the image of the vocal chords in an instant.

ON ENAMELING PHOTOGRAPHS.

[Compiled by H. C. R. Harley for the *Journal of the Photographic Society of India.*]

As only a few short formulas are to be found in the photographic journals one comes across on the above subject, the following has been compiled for those who may be anxious to try the process.

I must, however, acknowledge that no part of what follows is original; but is a *précis* of the process published under the heading of "A Practical Treatise on Enameling and Retouching in Photography," by P. Piquepé.

It is important that the glasses used to squeegee the prints on should be without any flaw, and patent plate; the next important point is their cleaning. The following is recommended as a good solution for this purpose, viz., alcohol 100 parts, tripoli 5 parts, and iodine 1 part; shake well before using. When required for use, pour a few drops on the glass, rub well all over until quite dry, then with a wash leather rub hard, but not too hard, and in a few seconds the glass will be clean.

The first operation in enameling consists in interposing—between the collodion and the plate—an isolating substance to facilitate the transfer of the finished print; the simplest and safest for this purpose is talc or French chalk, to be used thus: Take a piece of old calico, rather fine, pour into it a certain quantity of talc, tie up the corners, and squeeze it all to the center till you have got a ball as big as an egg; with this rub the plate all over with a rotatory movement from the center toward the edges till quite brilliant (the lump of talc can be used over and over again till exhausted). Now take a damp cloth, and pass it round all the edges of the glass to the depth of about one-sixth of an inch, so as to remove the talc from the place along which the damp cloth has been passed.

Another method is to pass round the edges of the glass—instead of the damp cloth, but to the same depth—a brush dipped in albumen.

The plate having been treated as above is put into a rack to dry.

When dry take plain collodion, as fluid as possible, and, after lightly dusting the surface of the prepared plate, pour the collodion in the plate in the ordinary way, taking care that every part of it is covered, including the edge, off which the talc has been wiped off or brushed over with albumen, otherwise the print would begin to detach itself in that spot. The layer of collodion should be very fine and transparent.

While plates so prepared are put aside to dry take fine white sheet gelatine in sufficient quantity for the number of plates to be done, and placing it in a clean tray add sufficient cold water to cover it; allow this to soak for some hours, then put it into a saucepan, which stand inside another full of water, placed in a quick fire, and stir it from time to time till thoroughly dissolved.

(A quart of gelatine prepared as above will cover 250 plates; what is over need not be thrown away, but put aside for future use.)

When the gelatine is dissolved, filter through very fine linen into a bottle strong enough to stand heat, and having filled it to the top wait a few minutes till all the air bubbles have come to the top, which should be blown off; then take a very clean dish, which should have one end of it raised by a piece of wood or any other support, and into this pour the gelatine very slowly, so as to avoid air bubbles, until the liquid just covers the raised end. Now take one of the collodionized plates by a corner, and *having the coated surface toward* the *gelatine solution*, rest one end of the plate on the raised end of the dish, and supporting the other end on a silver or ebonite hook, gently lower it until the collodionized surface rests on or touches the liquid in the dish, without allowing the gelatine to get on to the back of the plate; then lift up very slowly, and having drained it for a moment, lay the plate flat on a shelf well protected from dust.

Do this in a good light, and very slowly. The plates thus coated should be left to dry for ten or twelve hours in a warm room, and when dry can be stowed away for use, and will keep good for a long time.

Plates of a large size should receive at least two successive films of gelatine, leaving plenty of time to dry between each coating. The greater the number of films the plate receives the greater will be the depth, strength, brilliancy, and delicacy of the enamel.

This completes the preparation of the plates, which are now ready to receive the photographs to be enameled. But before doing anything, see that everything is in its place, so that the work may proceed rapidly and with certainty.

To begin with, prepare the following solution :

Gelatine	4 ounces
Water	54 ounces

Soak the gelatine in the water for some hours, and complete the melting by putting it into a saucepan over a slow fire, and stirring it every now and then ; while this is being got ready, place on your left side and within reach the box containing the collodionized and gelatinized plates ; near this have a rack to receive the plates after the photographs have been fixed to them, and near by have a stove with a large chop tin dish full of hot water—it will be well to have two handles to this dish, so that when necessary it may be moved off the stove with facility.

In the hot water in this dish stand two porcelain dishes large enough to contain the prepared plates and photographs to be enameled.

Have ready also a sponge and a squeegee. Now filter the dissolved gelatine into both these dishes, taking care to avoid air bubbles as much as possible. This done, take the vessel containing the hot water and the two dishes with the gelatine solution off the stove, or the solutions will become too heated, and immerse a few of the prints in the dish on the right-hand side. Then take one of the prepared plates and lay it with the collodionized side in contact with the solution in the left-hand dish. *Raise the plate immediately this is done*, otherwise the preliminary pellicle will become softened, and, taking one of the prints from the gelatine solution, lay it with its face in the collodionized surface. Hold it in its place, and with a squeegee rub, not too hard, the back of the print to get rid of the excess of gelatine and air bubbles. Turn up the glass, wipe it over with the sponge soaked in warm water, and make sure that there are no air bubbles ; if any, rub the squeegee along the back until they are got rid of.

All these operations should be done quickly, so as not to give the gelatine time to coagulate. Put the plates on the rack to dry.

The rack for these plates should have very wide grooves, so as to avoid rubbing the pellicle, which at this stage is very tender and soft.

The solution of gelatine should not be too hot, or the prints will turn yellow. If the water in which the dishes containing the dishes with gelatine solution begins to cool before the pictures are all mounted, it must be reheated.

It is difficult to say how long these plates will take to dry. In very hot weather choose a very airy room, and not too warm, in which to dry them.

An enamel can never be too much dried ; on an average it may dry in twelve to fifteen hours, but it is best to allow it a longer time.

As soon as it is quite dry to the touch, with the point of a penknife cut the pellicle inside the albumenized edge, and insert the knife so as to get hold of the print between it and the thumb, and raise it gently. If sufficiently dry, the pellicle will, in detaching itself, make a dry, hard sound, like tearing a piece of parchment or calico.

After they are detached the prints must be kept quite flat.

The prints can now be trimmed and mounted as suited to each individual fancy, but care should be taken that the enameled surface is touched as little as possible with the fingers.

Photographic Societies.

THE CALIFORNIA CAMERA CLUB.

The California Camera Club gave a lantern slide exhibition, and lecture on Picturesque England, by Dr. C. H. Steele, in the Metropolitan Temple, Friday evening, March 20th. The entertainment was largely attended and thoroughly enjoyed by all present. The next lecture will be glimpses of Ireland.

THE LYNN CAMERA CLUB.

This club held its second annual competitive exhibition at the Club House, 42 Broad Street, March 24th to the 28th, inclusive. The catalogue, which was finely illustrated from negatives by members of the club, is a model of its kind. The exhibition was almost twice as large as that of last year, and the average work was also much better. 123 frames were displayed, besides a large number of transparencies.

The judges, Charles H. Currier and John H. Thurston, of the Boston Camera Club, viewed the exhibit Monday and made the awards of silver medals. In judging, the gentlemen considered not technique alone, or artistic merit solely, but the best combination of the two, and awarded prizes to those which by a skillful combination of the above qualities produced pictures in every sense of the word.

The first prize for the best bromide enlargement, a silver medal, fell to E. F. Bacheller, for a view on a branch of the Saco River. The water effect and the massed foliage, with a glimpse of fertile fields at the side, produce a handsome picture worthy the honor conferred.

W. C. Wheeler took second, with a grand view of the old tower at Newport, treated in a most artistic manner.

For the best bromide enlargement, hand camera, the prize, a silver medal, was given a view by W. W. Griffin, entitled "And this is the Way they Looked," showing four male figures ready to pass under Niagara Falls, clad in oilskins, with a camera in the hands of one of the men.

"Listening to Voices in the Pines," the work of Mrs. Jeannette M. Appleton, showing two young girls reclining in indolent ease on a grassy bank, under the shadow of the tall pine trees such as the South alone produces, won the silver medal for contact bromides.

The committee had a difficult task in determining the winner of the silver prints, but the silver medal was at last given J. W. Darcy, for a handsome and artistic snow scene entitled "After a Snow Storm," showing one of the Lynn woods roads, with the trees robed in snow, and a horse and sleigh in the distance.

W. A. Pevear's "Scene in the Park," a picturesque view of the Public Park, on the borders of Glen Lewis Pond, won the medal for miscellaneous prints.

Among the positives other than paper, E. F. Bacheller won the prize for a transparency showing the "White House Ledge," a mountain view with the still water and the misty hills rising far into the distance.

The medals are of silver, unique in design, representing the club seal pendant from a small silver bar. The second prize in the bromide enlargement class is a bronze medal of similar design.

The Editorial Table.

"A Woman's Trip to Alaska," being an account of a voyage through the inland seas of the Setkan Archipelago in 1890, by Septima M. Collis (Mrs. General C. H. T. Collis), and illustrated by the American Bank Note Company, of New York, largely from negatives by the author, comes to us with the compliments of the Eastman Company. The Cassell Publishing Company are the publishers. The book opens with a letter from the late General William T. Sherman to Mrs. Collis, and contains as a frontispiece a colored reproduction from a photograph of the Muir Glacier. Many of the illustrations are colored and all are highly interesting, being, as they are, mostly from the author's own kodak photographs. Frequently they are introduced in the text as vignettes, and as the printing and paper are of the best, the book as a whole leaves nothing to be desired, and makes a very appropriate gift book to or from an amateur photographer.

The Sisters' Tragedy, and Other Poems. By Thomas Bailey Aldrich. Boston and New York: Houghton, Mifflin & Co.

The publication of a volume of poems by Thomas Bailey Aldrich is always an event in literary circles, and the present volume is no exception to the rule. The same delicate fancy and grace of expression which have characterized Mr. Aldrich's poems from the first, and which have won for them so many friends and admirers, are manifested in this latest collection of his verses in an undiminished degree, and there is the additional charm in these later poems of a more mature thought. Most of the poems originally appeared in the magazines, and there made the friends who will be so glad to have them in this convenient and more permanent form. It goes without saying, after announcing the publishers' names, that in point of type, printing, binding, etc., there is nothing to be desired.

The Blair Camera Company have issued a neat little pamphlet describing their new "Kamaret" Camera, with the improved roll holder.

The Watkins Exposure Meter (patent applied for) is an instrument something more than a mere "guide for beginners." It is an accurate and exact calculator, and far more reliable than the estimate of even the most experienced photographer when treating of different subjects. The light which falls upon the subject is accurately tested, and a simple calculator estimates the exposure from this data. Full information concerning the useful little instrument may be obtained by addressing W. B. Solomon & Co., 1227 Third Avenue, New York City, who are sole agents for the United States and Canada.

Record of Photographic Patents.

449,487. Portable Dark Room. James H. Markley, Brooklyn, N. Y.

Queries and Answers.

51 E. S. B. asks if there is any India ink that will not run under the burnisher?

51 *Answer.*—To prepare India ink, neutral tint or any other color for spotting albumen prints, dissolve two and a half drams of the best gum arabic by rubbing it in a mortar with one ounce of distilled water, and adding to it one dram of alcohol and fifteen grains of glycerine. In two and a half drams of this solution dissolve nine grains of prepared dry ox gall, and mix with it the retouching or spotting color. If you allow the spottings to get perfectly dry, they will stand a tolerably hot burnisher well.

52 Box 193.—1. Can you tell me what makes my negatives so speckled (negatives shown)? I am thinking it is the fault of the plate, as I compound the developer strictly after the formula. 2. What is the difference between granulated sulphite and granulated carbonate of soda and the respective crystallized salts?

52 *Answer.*—1. The speckles come from air bells forming and settling upon the plate during development. To avoid them rub your fingers over the plate immediately after the developer has been poured on, or brush it with a tuft of cotton or a camel's hair brush. 2. The granulated salts are deprived of their water of crystallization, or exsiccated; otherwise there is no difference. When the formula prescribes the crystallized salt, take but one-half of the quantity of the granulated.

53 ALBERT S.—How can I take pictures by moonlight; what plate should I use; how to develop it; and what is the proper time of exposure by the light of the full moon—the subject an ordinary dwelling-house?

53 *Answer.*—We at one time undertook to make such a picture with a Gundlach 5x8 rapid rectigraph, stop $\frac{f}{15}$; a Carbutt Eclipse plate, exposed for two hours by the light of the full moon, developed the plate with eikonogen and obtained a tolerably good negative. But moonlight pictures are always disappointing; they are devoid of all artistic effect, as during the long exposure shadows travel all over the subject at the same rate as the moon moves, and the result must necessarily be a flat picture. The so-called moonlight photographs are generally daylight pictures, printed on slightly blue or green paper to give it the peculiar cold tone, and with the application of several printing dodges.

54 B. R. B.—I have found some plates to fix much slower than others, and even a saturated solution of hypo sulphite soda does not accelerate the process. What I want to know is, why do books prescribe a fixing bath of moderate concentration in preference to a stronger?

54 *Answer.*—Bromide of silver emulsion plates fix more rapidly in a solution of moderate strength, and very strong hypo is productive of blisters and frilling. We advise the use of the acid fixing bath repeatedly described in these columns. Pure bromide of silver emulsion plates fix quickly, but with adding iodide of silver to the emulsion fixing is prolonged proportionally. As a comparatively small amount of iodide increases sensitiveness, the most sensitive plates are generally the slowest to fix. Some emulsions contain chrome alum to harden the gelatine; such plates, but rare in comparison, will fix very slowly.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

W. I. LINCOLN ADAMS, Editor.

Issued every Friday.

Monthly (unillustrated) edition issued on the last Friday of the month.

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Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.

All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

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THE New York Photo-Gravure Company have sent to us a handsome circular, announcing some of the art works which they have recently illustrated:

"Marriage for Love," and "The Sun Dial." Dodd, Mead & Co.

"Gray's Elegy," "The Brook," and "Gems of Art." Nims & Knight.

"The Cesnola Atlas." Metropolitan Museum of Art.

"Certain Sonnets of Sir Philip Sydney." Burrows Bros. Co.

"She Stoops to Conquer." Harper & Bros.

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"Love and Labor." William Pate & Son.

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"Dr. Piffard's Atlas." D. Appleton & Co.

"Beginning to End." F. A. Stokes Co.

"Land of Sleepy Hollow." G. P. Putnam's Sons.

"Muybridge's Animal Locomotion." University of Pennsylvania.

"Memoirs of Miss Ada Rehan." Augustin Daly.

Studio Changes.

Detroit, Mich. Mr. B. J. Holcomb succeeds Holcomb & Metzen.

Salem, Mass. Mr. A. B. Cross has sold his gallery.

Tyrone, Pa. Mr. H. H. Stem succeeds Stem & Smith.

Ida Grove, Iowa. W. C. Zimpleton is dead.

Business Notices.

TO LET.—Rooms of an old established photograph gallery. Good central location. LOUIS T. WISS,
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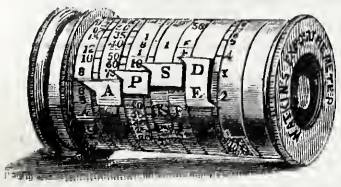
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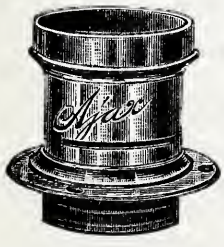
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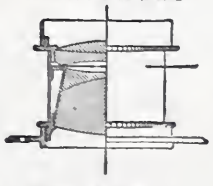
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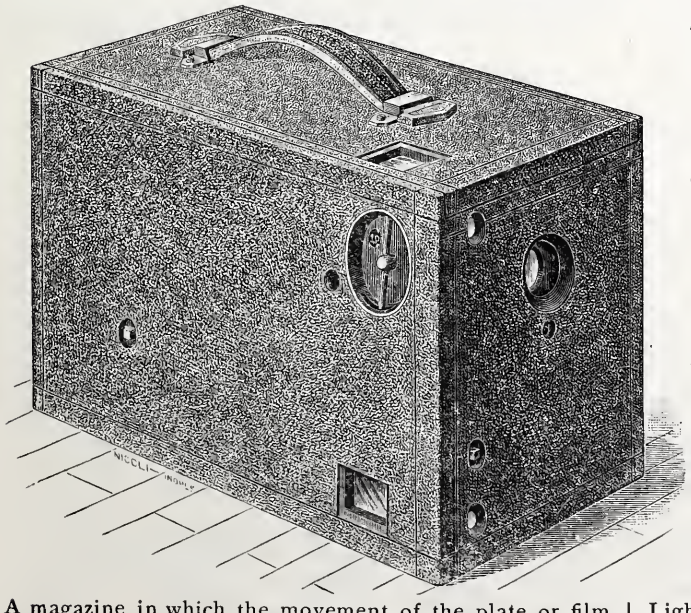
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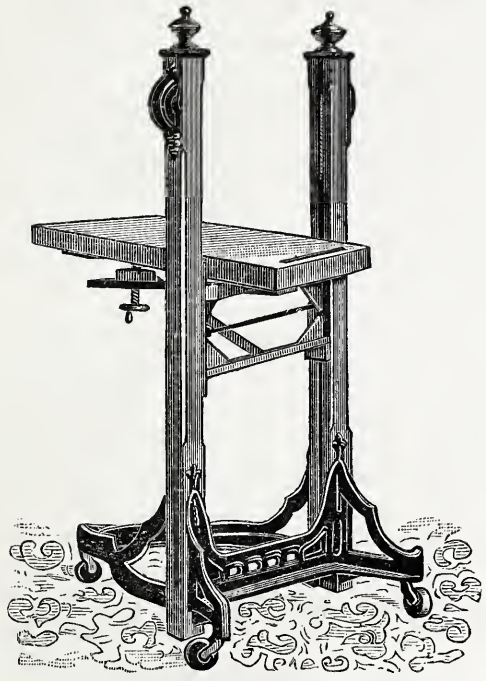
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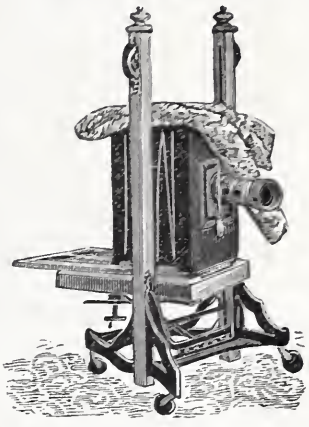
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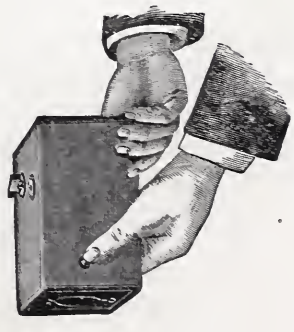
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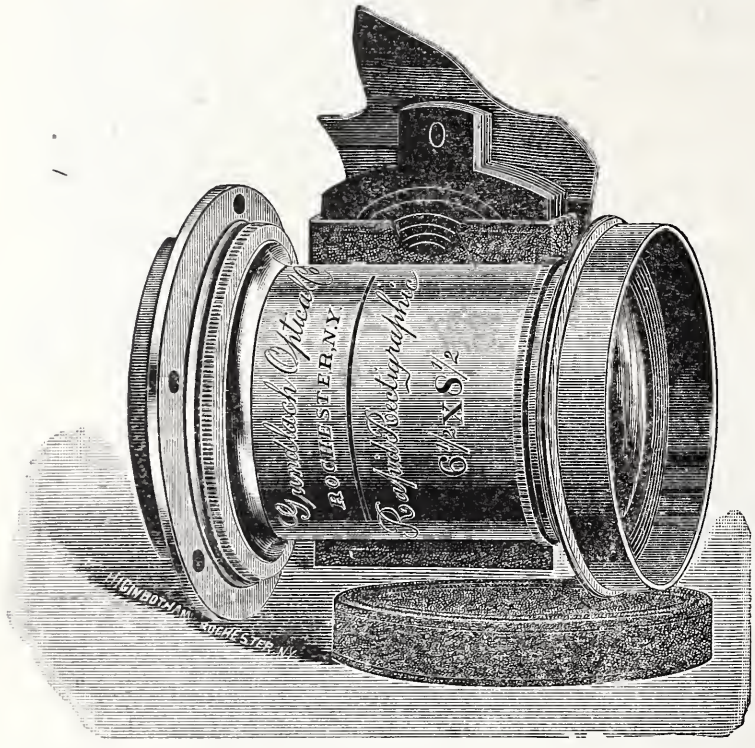
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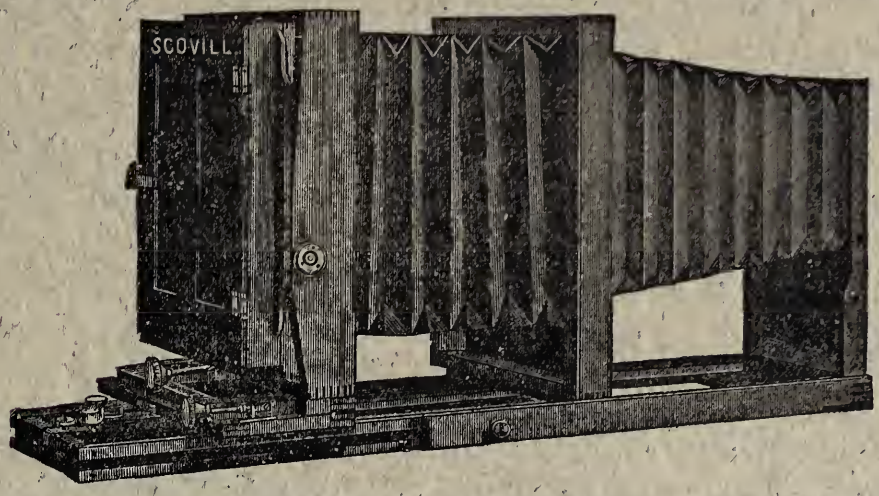
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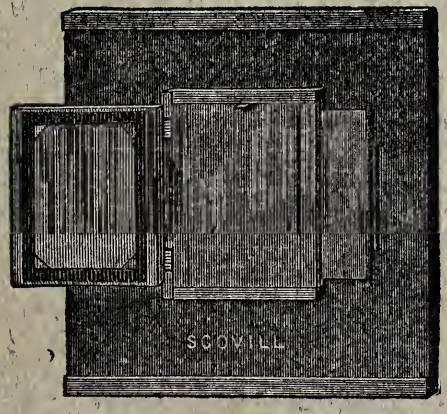
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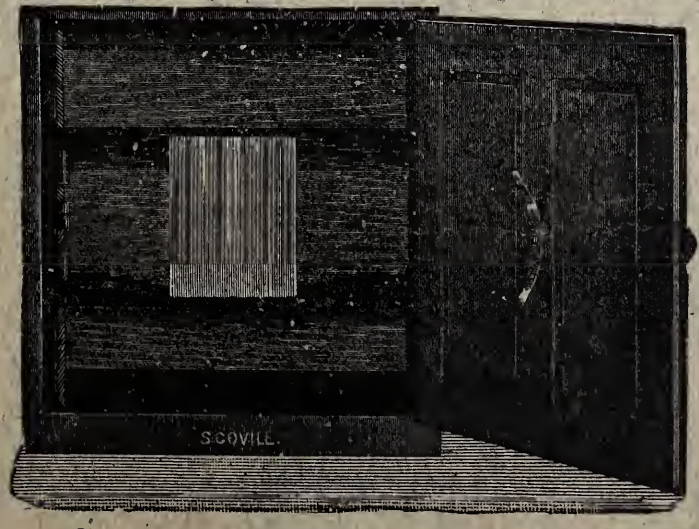
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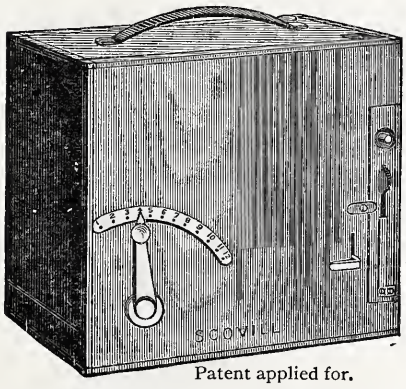
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THE PHOTOGRAPHIC TIMES.

Vol. XXI. FRIDAY, APRIL 17, 1891. No. 500.

"WHY DON'T YOU LEAN ON ME?"

Our frontispiece this week is one of the series of copyrighted pictures by M. B. Parkinson, of New York, and we are permitted to present it to our readers in photogravure, through the courtesy of Luecker, Unger & Co., the exclusive publishers of Mr. Parkinson's work.

The winning picture tells its story peculiarly well. It is indeed one of the most successful products of Mr. Parkinson's camera, and he has made a great many deservedly popular photographic pictures. Of his methods of work we are ignorant. His subjects are well chosen and he is always fortunate in his models. The rest is in composing, lighting, and the technical work of the actual photographing. Mr. Parkinson is certainly to be congratulated on his success.

PACKING GLASS NEGATIVES FOR SHIPMENT.

In these days of rapid printing processes, photo-mechanical printing methods, lightning speed newspaper illustrations, by which events occurring to-day are pictorially represented in the newspaper of to-morrow morning, or when the essayist, or the contributor to an illustrated magazine requires for the illustration of his carefully prepared article a cut made from the original negative taken of the event described, or of a scientific object, it becomes frequently necessary to transmit the negative glass plate by express to a distance of hundreds, sometimes even thousands of miles.

How often these negatives arrive at their destination in a totally unfit condition, scratched, corners broken off, defaced in a variety of ways, or broken into a hundred fragments, is almost impossible to conjecture, and it is not at all an exaggeration to say that of a hundred negatives shipped but twenty-five or thirty arrive in a serviceable condition.

When we consider that highly important negatives impossible to duplicate are sometimes the victims, it is easily understood what injuries to scientific or commercial interests may result from their loss. And still the proper application of a few physical laws, a little common sense or mechanical ingenuity might prevent either entire loss of or injury to a valuable negative. Instead of this, however, an almost incredible ignorance and absolute carelessness is displayed in the shipping of negative plates. We have several times received negatives from the far West, or the Pacific Slope, merely wrapped up in paper and placed in an empty, ready-sensitized paper box, or laid loosely in an empty plate-box under glass, and sticks of wood between, packed in an ordinary case with articles of hardware, or near bottles containing chemicals.

As it is much easier to ruin or to destroy a good negative than to make one, and as sometimes a destroyed plate is impossible to replace, the most scrupulous care and attention should be taken in packing a negative for transmitting from one place to another. The negative should be so packed as to resist immediate pressure, and the outside protection should be firm enough to resist. It should he placed firmly and solidly within its protector, not be allowed to shift about or come into contact with other substances likely to injure it.

We have shipped innumerable glass negatives to points all over the globe, and not one of them has been recorded as having arrived at its destination in an unserviceable condition. We place the negative, say a 5 x 8, in an ordinary preserver between two pieces of corrugated straw board, and wrap it in paper. It is then packed with sawdust in an empty 8 x 10 plate-box, on top and bottom of which are placed 8 x 10 backboards. After wrapping up and cording the package it is ready for addressing and shipment.

It is by no means a laborious task to do this, and you are sure that the negative is safe and will

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stand almost any extent of rough handling, reaching its destination is as good condition as it leaves your hands.

HELIOCHROMY.

In our researches to find out what has been done toward the solution of the problem of photography in natural colors, in order to collect all the information possible to guide us in our experiments, we found in the *avant propos* of a small pamphlet by the Count E. Ogonowski, entitled "Photochromie"—the contents of which not, however, treating the object in question—some new facts relating to the accidental obtention of photographs in colors.

Although the cause of the phenomenon is not alluded to, probably for the reason we pointed out in our last paper on heliochromy, these are indeed too valuable not to be brought to the attention of the readers of The Times.

After remembering some cases of partial colorations in the daguerrean image which were similar to those we have mentioned, Mr. Ogonowski quotes from Mr. H de la Blanchère's "Répertoire Encyclopédique de Photographie" the description of various phenomena of natural coloration which, in certain circumstances, occurred during the development of the latent image formed on a wet collodion film; thus, if at the moment the image makes its appearance under the reductive action of pyrogallol, the plate is exposed to the influence of a weak light, not only it will be transformed into a positive, as every one knows, but the colors of the model are also, but imperfectly, reproduced; the more rapid the transformation the less perfect the coloration.

The author, a reliable authority, does not say whether the proofs were permanent, although it seems that they should have been so, one judging from the process which is given. It is as follows:

The exposure time is about twelve seconds in the shade by a good light.

The collodion is compounded thus:

Cadmium iodide.....	1.25 grams
Cadmium bromide	0.30 gram
Collodion.....100	c.cm.

Silver bath: 8 per 100.

Developer: pyrogallol acidified with glacial acetic acid.

Mr. de la Blanchère states that he first obtained, *par hazard*, the effects of coloration—which he never afterwards obtained as perfect and as complete, by putting aside, in a feebly lighted place, a plate upon which a stain appeared at the moment the luminous impression was acted on by the developer, whereby the image slowly took the "characters of a painting." The collodion was almost dry when the plate was placed in the fixing bath—sodium thiosulphate—where it remained for two or three minutes and was finally washed.

The same phenomenon was also observed by some operators on ambrotypes, that is, on direct positives on wet collodionized *glass* plates—which, in reality, are very weak negatives—when the development was stopped at a *certain stage* (this should be noticed), the image placed on a black cloth often pretty well reflecting the effects of coloration of the dress of the model.

The inventor of the hemispherical lens, the late Mr. Harrison, told to the writer of this paper, in 1860, that he once obtained similar results, but for which he could not account.

Indeed, all these facts now acquire a great importance, for the causes could not be anything else than that of the phenomenon of interferences demonstrated by Mr. Lippmann; moreover, since the effects in the cases in question were produced by a deposit of metallic silver on the parts acted on by light—not in the least by the reduction of the silver haloids constituting the photographic film, as it happens when the image is developed by the alkaline method—they show conclusively the principle which must direct the future researches of experimenters.

P. C. Duchochois.

OBITUARY.

JOHN A. WHIPPLE.

John A. Whipple, the veteran photographer, died suddenly, at Boston, Saturday, April 11th, in the sixty-eighth year of his age. He was one of the oldest and best known photographers in this country. He organized, with J. D. Black, the firm of Whipple & Black, in 1848, having previously been in business under his own name. He made many friends, and as a result of careful experiments, he produced, in 1852, photographs on paper for the first time. This process, which he called "chrystalatype," was a slow one, and one which was not taken direct from nature, but at second hand from a daguerreotype. He was among the first to use the collodion process by which direct pictures could be taken. He was also the pioneer in lunar photography, having made the first photograph of the moon from the Harvard Observatory. In the '60s Mr. Whipple went to Tennessee to photograph an eclipse for that university. In 1859

the partnership with Mr. Black ceased. From that time to 1874 Mr. Whipple conducted his business alone. He then gave up photography, and for the last six years had been retired from active business. In later years he was also a publisher, especially of religious books. He leaves a widow and five children.

P. A. OF A. PRIZES.



The above cut is but a feeble portrayal of the beautiful bronze group to be given as the grand prize at the coming exhibition at Buffalo, held under the auspices of the Photographers' Association of America, for the three photographs which best illustrate Tennyson's beautiful poem, "Elaine." There is a very decorative marble pedestal about 3½ feet high on which the bronze rests, making it a particularly attractive ornament for any home or studio. Is it not worth an effort on your part to try and win it? Will not that effort, even if not successful in winning the prize, be an incentive in stirring up your latent talent so that a more artistic and poetical feeling will be observed in your productions? Are not the photographs you will make well worth your labors as specimens for your studio, showing your customers your ambition to excel, thereby winning their confidence? Put off the feeling that it is of no use to try, as some one else will surely win the prize, but go into it body and soul, you may far excel the confidence you have in your own abilities.



This Carrara marble bust is for the prize in the genre class. The head is nicely modeled and cut, and is an exquisite art production. The same remarks as to striving for the prize will apply to this class as mentioned for the grand prize.

The medals are to be struck from an entirely new design, and one which the Executive Committee feel confident will be admired by all.

Let all strive to secure one or more of the different prizes. I am sure you will feel well repaid for the study and work spent in trying.

Application blanks for space can be secured by writing to S. L. Stein, 310 State Street, Milwaukee, Wis; or W. A. Davis, 872 Broadway, New York.

George H. Hastings,
President, P. A. of A.

THE RISE AND FALL OF THE DAGUERREOTYPE.

(As Seen by a Country "Operator.")

III.

The photographer of to-day has his plates furnished to his hand ready made, and all he has to do to obtain the best result in the world is to put one of them in his plate-holder, expose and develop it properly, fix, wash and dry—and there he is.

But what would the old time daguerreotypist have thought if he had been told of a camera loaded with a hundred plates all ready to be exposed whenever and wherever he might choose—to-day, or next year, or ten years hence; at home, or anywhere else on earth; and furthermore, that after being carried to the ends of the earth in quest of subjects, they might be brought back and developed in the same room where they were put up? This I fancy would have been considered a possibility more remote than taking the colors of nature.

In striking contrast with the present art of picture-making was the laborious process which the daguerreotypist of those early days was obliged to go through to obtain his single result. His plates, if they came from France, bore the marks of the planishing hammer; if they were of American manufacture they were covered with fine lines running in one direction, which were probably produced by the machine used for scouring them. In either case a new surface had to be given the plates, and to do this in the best manner required a degree of mechanical skill which was not in all cases readily acquired. A perfect mirror surface was the end aimed at. First the plate (the edges being bent down) was scoured with the finest levigated rotten-stone and alcohol, applied with a pledget of cotton or a small patch of cotton flannel. This was done to make the surface clean of any impurities which might adhere to it, and to efface the hammer marks or lines referred to. The rotten-stone was cleaned off with fresh cotton or flannel, and it was shown by breathing on the plate whether this part of the work was properly done. If so, the plate was ready for buffing. The primitive buff consisted of a strip of board about 20 to 24 inches long by 3 wide, a little convex lengthwise, one end of which was formed into a handle, and the rest of the length covered with two or three thicknesses of cloth, and finally with prepared buckskin. Then pure jeweler's rouge of the finest quality, which was tied in a close-woven muslin bag, was sifted over the face of the leather, rubbed into the pores, and the excess brushed off with a clean bristle brush. The plate, resting on a level bed and held firmly at one end by a vise, was then rubbed by the forward and backward motion of the buff, the work being similar to the physical exercise of wood sawing or that of using a jack plane. What was saved in the less muscular strength required to wield the buff was made up for in the greater velocity of motion with which it was usually swung, especially when several customers were waiting. After buffing the plate in one position it was turned and the other end fastened in the vise and the polishing repeated; again it was turned and polished lengthwise also in both directions as it had before been polished crosswise.

After the plate had received in this manner as high a polish as possible, it was attached to the cathode or negative pole of a single-cell Daniels battery, and immersed in the silver solution in which was suspended a plate of pure silver connected with the other pole. In a short time a thin coating of silver was deposited on the plate, changing the polished surface to one of sky-blue color. Then it was washed, dried over a spirit lamp and again buffed. Finally the finishing touch was given the plate with a buff covered with silk velvet and powdered with calcined lamp-black.

This lamp-black was prepared as follows: Two crucibles, one a size smaller than the other, were packed full of common lamp-black; the smaller one inverted and pressed into the top of the larger, the two then luted together with clay, and fired for an hour at red heat. This burned up all the resinous matter, leaving only an almost impalpable powder of nearly pure carbon, which gave to the velvet a most delicate tooth, with which was produced a deeper and more perfect polish than was otherwise obtained, although it was not always used.

I remember being told by a silversmith that he thought he could give me some hints about polishing silver that might be serviceable, and would be glad to do so. I thanked him for his offer, but before accepting it polished one of my plates as well as I knew how, and took it to him in a plate-holder, which I held before his face and drew the slide. Seeing only the reflection of his own face, he asked:

"What have you there?"

"One of my polished plates."

"Well, I have nothing more to say. I never saw anything like it."

A plate so prepared was ready for the coating boxes, that is, if the work had been properly executed. It was quite possible to do it in such a bungling manner that the plate would be entirely unfit for use. When this happened an expert could see that the polishing powder had been rubbed into the plate, and it was then necessary to heat it over a spirit lamp until a scum was thrown out upon the surface, which must be scoured off and the buffing repeated more skillfully and with a lighter hand. A pure surface of silver and the highest polish were indispensable prerequisites of a fine daguerreotype.

The iodine and bromine were contained in heavy, oblong glass jars, as large inside at the top as the

largest plate to be used. The top of the jar being ground to a level, was fitted with a cover of plate glass, also ground, and this last again was inserted flush in a sliding frame twice the length of the box in which the jar was placed. When the coating box was not in use the plate glass was over the jar and held firmly down by a wooden screw passing through a bridge across and above it. When in this position the other half of the sliding frame (which was open) projected beyond the box, and held the kits for the different sizes of plates. A second cover of the same length as the box and the same width as the sliding cover was held down upon the latter by a brass spring, exactly like those now used on printing frames, which spring was screwed to the non-sliding cover, the ends of the spring being pressed down and into gains cut in the under side of the bridge before mentioned. This last was held by dove-tail joints in the sides of the box (which were wider than the ends), and could be readily removed and the covers lifted off when occasion required.

In the first coating box was placed a sufficient quantity of pure iodine in crystals, and with it a small iron cup containing chloride of calcium to prevent the vapors of iodine from being mixed with moisture before uniting with the plate. This desiccator was dried every morning over the spirit lamp. The second box contained the famous "Mayall Quick Stuff" as it was called, consisting of bromine, hydrofluoric acid, sulphuric acid and water.

To coat a plate it was placed face down in its proper kit in the open and projecting end of the sliding cover, the binding screw relieved by a turn, the projecting end shoved under the top cover and over the iodine.

The utility of this extra cover is now shown. The elasticity of the spring holding it in contact with the slide and the latter in contact with the jar, permits the backward and forward motion of the same, while it prevents the escape into the room of the vapors of iodine when the plate is over the jar. The temperature of the room must be such as to permit the moderate vaporization of this halogen, and the plate, after a short interval, is slid back and inspected. This is the most interesting part of the manipulation. The progress of the coating is shown by the colors assumed by the sensitive surface, the changes of which are carefully watched in a weak light with the aid of a sheet of white paper fastened to the wall within easy reach, for comparison. First, the plate assumes a lemon yellow, then a deeper yellow, then passes into a faint rose, then a deep rose; from this a light gray tint begins to touch over the surface, from which it soon changes to a cold steel gray, and then the series begins over again. Perhaps no two photographers ever coated their plates exactly alike. Some stopped their first coating at the yellow color, some at the light rose. I generally preferred the point where the rose just began to merge into gray.

The time during which the plate was over the iodine in assuming the desired color was kept by counting, because after being coated with the accelerator it must be returned to the iodine and recoated one-third as long as the first time.

When the proper tint was reached, the plate was transferred to the second coating box until the color changed to the next stage of the series, after which it was recoated with iodine in the manner mentioned. Different proportions of iodine and bromine produced different effects in the resulting picture. These modifications were curiously similar to those now capable of being produced in the development of a dry plate. But in the daguerreotype a larger proportion of bromine tended to softness and less contrast, a smaller proportion to greater brilliancy, and it was always a study to adapt the coating of the plate to the peculiarities of the subject.

The exposure in the camera must be very nearly correct. If a few seconds too long or too short there was no means that I ever heard of by which the mistake could be rectified. As a consequence we became very sensitive to changes in the light and learned by long practice to guess pretty closely to the correct time of exposure.

W. H. Sherman.

(*To be continued.*)

THE ELEMENTS OF PHOTOGRAPHIC EXPOSURE.

THE subject is a complex one, and no instrument or system can convert the question of "how long to expose" into a simple problem.

Five factors (conditions or influences) affect the duration of a photographic camera; they are:

LIGHT, PLATE, SUBJECT, DIAPHRAGM, DISTANCE.

Each one of these factors is liable to considerable variation, quite independently of the other factors, these variations being sometimes within and sometimes outside the control of the photographer. In most cases (not always in the case of distance) any change in one of the factors requires a corresponding change in the exposure.

For instance, let a small object—say a terra-cotta bust—be placed at the end of a long board, and the camera at the other end, and several exposures

made without alteration in the plate, subject (the bust), diaphragm, or distance, but let the first exposure be in sunlight, the second with the whole carried into the shade, the third in a room near the window, the fourth in a room at some distance from a window. Experience teaches that the exposures must increase in exact proportion as the power of the light under these different circumstances decrease. In this case the factor of *light* would vary, but the other factors would remain unaltered.

But let a white plaster bust be substituted for the terra-cotta one, and experience teaches that one-eighth part of the exposure will be sufficient; in this case the factor of *subject* would vary.

Again, let four different exposures be given with four different diaphragms (other conditions remaining unaltered), these marked by the optician as F/8, F/11.3, F/16, F/22.6. Experience (and mathematical fact) teaches that the second exposure must be double the first, the third exposure double the second, and the fourth exposure double the third. This would be a variation in the factor of *diaphragm*.

In the same way the use of different brands of plates will necessitate exposures in exact proportion to the sensitiveness.

It will now be seen how the different factors (or conditions) act *entirely independently* of each other, and therefore the only correct method of considering an exposure is to treat each factor as an independent influence.

Let us more closely define and examine these factors.

A.—The Actinic Power and Volume of Light Falling upon the Worst Lighted Part of the Subject in which Detail is Required.

Light varies in chemical or actinic power (and this is the quality which concerns a photographer, not merely its brightness to the eye) with every hour of the day and every month of the year; in addition to this the atmospheric conditions—east wind, recent rain, etc.—alter its value. Then the *volume* of light reaching the subject varies very much; perhaps a large part of it is cut off by overhanging trees or adjacent buildings; or the subject is in a room and only a small proportion of the out-door light reaches it by means of the window, and here the *distance* from the window makes an enormous difference in the intensity of the light.

It will be noted that the light to be estimated is that which falls upon the subject, not that which *ought to* fall upon it according to the time of day, or which would fall upon it if it happens to be out-of-doors.

The definition states that "the light falling upon the worst lighted part of the subject in which detail is required" is what has to be considered the key-note of the exposure; this is simply following out the old golden rule, "expose for your shadows." It must, however, be borne in mind that it is not always possible in practical photography to get the detail in the deepest shadows impressed upon the plate without hopelessly over-exposing for the distance. For instance, in a view including the mouth of a cave and a bit of distant landscape it would be absurd to take the light some yards inside the cave as a basis of exposure. The practical limits of photography must be kept in mind.

Again, in a sunlighted landscape, with only small amount of shadow—such as that of hedgerows—the judgment of the photographer will tell him that he will get a more brilliant picture if he ignores these unimportant bits of shadow and takes the direct sunlight as the basis of his exposure.

The estimation of light is the key-note of an exposure, and is perhaps the most difficult part of all; these difficulties are much lessened by the use of an actinometer. The reason why the old "rule of thumb" method is still in vogue is that the systems and methods of calculation connecting the actinometer observation with the requisite time of exposure have been most imperfect and inaccurate.

P.—The Sensitiveness of the Plate Used.

A practical trial seems to be the only method of getting this information. The Warnerke sensitometer numbers, as given by the makers, are not always to be relied upon, and the terms "thirty times," "sixty times," etc, are usually most inaccurate and misleading. With some makers it is impossible to rely upon getting plates of uniform sensitiveness. This practical test is all the more necessary, as the "sensitiveness" of a plate in the hands of any worker really includes the method of development he adopts and the class of negative he requires.

S.—The Capacity of the Subject, or its Most Non-Actinic Part for Reflecting Light to the Lens.

Experience teaches that an average exposure suitable for a medium-colored object is insufficient for a dark terra-cotta bust, and on the other hand a white object requires a much shorter exposure in order to render the delicate half tints; and an object in black and white (pen drawing, engraving, etc.) also requires a short exposure in order that the black part may have no effect upon the plate, hence there must be a variation in exposure to suit the *subject*.

Great care must be taken not to mix up the question of darkness in *lighting* (which comes under A) and darkness in the *color* or tone of the object itself. A dark object brilliantly lighted may reflect an equal amount of light as a light object badly lighted, but in order to get accurate results the two factors *must* be kept distinct in the mind. Most exposure tables and several exposure meters have made a terrible muddle on this point. Several instruments are based upon the idea that "an exposure should be in exact proportion to the amount of actinic light reflected from the subject, or its most non-actinic part." This presumption is an entire fallacy; it would be correct if the object of an exposure were to get an equal deposit or density in the negative for each class of subject, but it need hardly be pointed out that the object of photography is to show correctly the *difference* in the lightness or darkness of objects.

My system makes a standard of average colored objects, such as the average in a street view or landscape or portrait; this is valued at 100, and objects or groups of objects, which experience teaches require different exposures, are valued in proportion, darker up to 300, and lighter down to 25.

In landscape, the distant objects (say over 100 yards or so) are best treated with less than the average exposure (see explanation under F), but in nine cases out of ten this shorter exposure can not be given, as the view generally contains a foreground which has to be the key-note for exposure.

It is in the estimation of *subject* value that the artistic skill of the photographer comes in; light, plate, and diaphragm can be treated mechanically, the subject can not.

The subject values of negatives to be used for enlarging, reducing, and printing, come under entirely separate rules; they are in proportion to the time they take to print on ordinary sensitive paper.

D.—The Size of Diaphragm or Stop.

A lens may be regarded as a window through which light may be admitted to the sensitive plate; the larger the opening of the window (*i. e.*, the diaphragm) the more light admitted and the shorter the exposure required. Now, a small window, which would sufficiently light up the walls of a room 10 feet square, would be insufficient to equally light a 20 feet room. It is therefore obvious that a mere statement of the size of a diaphragm is not sufficient for photographic purposes, unless the focus of the lens (the same thing as the length of the room in my comparison) is stated.

The general method of giving this information is to state what fraction of the lens focus the stop is; thus a half-inch stop would be marked F/16 if used with an 8-inch lens, while if used with a 5-inch lens it would have a different value and be marked F/10.

If the figures in these fractions are squared, they express the proportionate exposures to be given, and the squared figures, divided by 16, are the U. S. (uniform system) numbers of the Photographic Society of Great Britain. The standard diaphragms most in use are: F/4, F/5.6, F/8, F/11.3, F/16, F/22.6, F/32, F/45, F/64, and each one of this series requires double the exposure of the previous one.

Unfortunately all makers do not adopt this system, but mark their stops according to their own ideas. It is therefore often necessary for a photographer to mark the value or ratio on each stop for himself. This is easily done without any calculation. Find the equivalent focus of the lens by focusing it on some distant object (chimney or tree), and measuring the distance from the stop (if a double lens) or the back combination (if a single lens) to the focusing screen. Suppose this distance to be 10 inches. Draw a line 10 inches long on a sheet of paper; now take the diameter of one of the stops with the points of a pair of compasses, and see, by "stepping" the legs, how many times it will go into into the line you have drawn. Thus, if the stop is 1 inch in diameter it will of course "step" ten times in the 10-inch line, and the diaphragm must be marked F/10.

A useful diagram and table for marking stops with their U. S. numbers are given in the "British Almanac" for 1888, and elsewhere.

It should be mentioned that in stating the diaphragm used with a lens its rapidity is stated; if a "rapid" and a "landscape" lens are both worked with F/16 for instance, they are worked at the same rapidity.

F.—The Distance of Subject from Lens.

This is a point much misunderstood even by experienced photographers.

It may be taken as a general rule that, except when photographing near objects (less than 24 times the focus of the lens distant), or on the other hand extreme distance in landscape, no variation need be made for differences in distance.

When a very near object is photographed, the camera has to be racked out, and the exposure increases in proportion to the square of the increased focus of the lens. When the subject is more than 24 times the focus of the lens distant (18

feet for a 9 inch lens) this variation is too minute to be taken into account, and if the air were perfectly clear—as it is sometimes among the Swiss peaks—all objects beyond that distance would require the same exposure. In England, however, the slight fog or mist almost always present in the air adds reflected light to objects more than one or two hundred yards distant, and thus decreases the exposure (it is impossible to express this by rule, as it depends entirely upon the *amount* of mist in the air); this shorter exposure can not often be taken advantage of, as pointed out previously.

Alfred Watkins.

Correspondence.

MATT SURFACE PAPER.

To the Editor of The Photographic Times.

Dear Sir: I was much pleased to see the advertisement of "Clemons New Matt Surface Paper" in The Photographic Times of March 6th. I do not know who the manufacturer is, nor how much reality there is in the claim that it is "something new under the sun." But the paper is new to me, and it has given me so much satisfaction that I would like to have it brought to the notice of all amateurs.

I came upon it accidentally several months ago, and was persuaded to purchase a supply by seeing some prints which had been made upon it. The directions given for sensitizing the paper (the same as given for plain paper by W. K. Burton in his book on silver printing), seemed to me so troublesome to practice, that the paper lay many weeks unused. But at length I ventured to sensitize it in the ordinary silver bath, and to tone in the usual way (treating it exactly like albumenized paper, except that it required only half the usual amount of gold), and after a little practice in learning how deep to print, and how far to tone, very perfect results were reached, and with less trouble than with other paper. I find the claims in the advertisement all made good, so far as they can be verified by practice; and there is, of course, no blistering. Something might be said of the softness and beauty of the prints, and of their artistic appearance, but all this may be inferred from what has already been written.

As the prints do not curl when dry, they may conveniently be kept in a portfolio, unmounted, or they may be mounted by the corners in any blank book; or they may be made on paper large enough to be made into a book. Would it not be well for the advertisement to appear oftener; or is the manufacturer indifferent to the amount of his sales?

C. M. D.

Williams College, April 4, 1891.

REVEREND AMATEURS.

To the Editor of The Photographic Times.

Dear Sir: The Photographic Times of April 3d, in its Notes and News column, contains a note concerning some reverend amateurs.

In America, as well as in England, dignitaries of the church, gentlemen of high attainments in optics, physics, and chemistry have become leaders and promoters of photography in the widest sense of the word. They are earnest students of unapproachable character.

The Chautauqua School of Photography, of which I have been a member for three years, has instructed a large number of well known and prominent divines; they have become faithful adherents to the school and her most powerful supporters. They, like the great mass of amateur photographers, have taken hold of the camera for recreative purpose, but have found it to be an almost absolutely necessary adjunct in some of their educational endeavors and for scientific researches, an aid to illustrate lectures on biblical or secular subjects. The present flourishing condition of the school is in a measure due to their efforts. The assistance rendered by them to our instructor, and the good example set to other students, deserve public recognition.

Respectfully yours,

W. A. M.,

A Graduate of C. S. P., Class of 1890.

New Vienna, Ohio, April 9, 1891.

Notes and News.

Mayor Fitler, of Philadelphia, has received a photograph of Comte de Paris, from that celebrity, with a beautiful frame with the coat-of-arms of France upon it.

Stanley, it is said, refused to sit for his portrait to any photographer until he reached San Francisco, and had J. W. Taber of that city photograph him.

A New York bank's vaults are reported to have been fitted up with a combination electric alarm and flash-light camera that automatically takes the picture of the intruder.

"It is a very handsome volume.—" The American Annual of Photography" for 1891, and the number and excellence of its illustrations are remarkable."—Colonel J. Waterhouse, Calcutta, India.

E. E. Hale's Photograph.—To a request for his photograph Edward Everett Hale replies: "I haven't one. I wish I had. There was one published in a well-known magazine a few years ago; that is it was supposed to be a picture of me. My friends called it the Veiled Prophet of Khorassan. The artist liked velvety effects better than likenesses.

It should have been stated in the note last week referring to the purchase of Mr. N. C. Thayer's business by Messrs. Sweet, Wallach & Co., that the immediate cause for the transfer was due to the state of Mr. Thayer's health. He has been very ill, and is at present unable to conduct the large business recently purchased by the enterprising Sweet, Wallach & Co.

The Douglass & Shuey Company begins business at 111 State Street, Chicago, as the successors of Gayton A. Douglass & Co., with every prospect of a conspicuous success. The recently elected officers are as follows: President, W. H. Shuey; Vice-President, Gayton A. Douglass; Treasurer, John C. Leedy; and Secretary, E. Burton Holmes.

The Annual Meeting of the Society of Amateur Photographers of New York was held on Tuesday evening, April 14th. The following officers, recommended by the Nominating Committee, were unanimously elected:

President, James H. Stebbins, Jr.; Vice-President, R. A. B. Dayton; Recording Secretary, T. J. Burton; Corresponding Secretary, F. C. Beach; Treasurer, C. C. Roumage; Directors: Frederick Vilmar, E. Warrin, Frank C. Elgar, Dexter H. Walker, R. L. Bracklow, L. B. Schram, H. N. Tieman, H. S. Mack.

The Nominating Committee itself consisted of John T. Nagle, M.D., Chairman; H. M. Grisdale, J. Wells Champney, E. C. Slater and A. P. Schoen, Secretary.

The first annual dinner of the Society of Amateur Photographers, given at Sherry's on Fifth Avenue, last Friday evening, was most successful. Forty members took part. A very artistically-arranged menu card was gotten up for the occasion, having the front page adorned with photographs of the officers and a group of the Board of Directors, while on the back was a cluster of photographs made by members. Presiding at the table was the President, James H. Stebbins, Jr., and near him on either side were the former Presidents of the society.

Mr. Canfield suggested that the society should undertake to have a memorial tablet to the honor of Dr. Draper placed on the building in New York where the doctor worked when he first discovered how to hasten the rapidity of the daguerreotype. To him belongs the credit of making the daguerreotype a success. Mr. Walker spoke upon the value the society had been to him, of the enthusiasm that abounded when it was first organized, and how highly it was esteemed abroad Other addresses were made by A. L. Simpson, Edward Leaming, J. Wells Champney, Charles Wager Hull, and Charles H. Davis.

The Diagram of the Exhibition Building, Buffalo, N. Y., has been sent out by the Secretary of the P. A. of A., with rules and regulations governing the photographic stock department of the Twelfth Annual Convention. The Blair-Anthony Combination have reserved the two principal spaces, and W. G. Entrekin, and one or two other dealers have found spaces in favorable localities near by. The indications at present do not point to a very large or prosperous convention.

Dr. G. M. Carlisle, the genial and efficient treasurer of the P. A. of A., is as actively engaged as ever in promoting the interests of photographers in general and those of his association in particular. If the Buffalo Convention next July is not a success, it certainly will not be because of any neglect of duty on the part of the treasurer.

George H. Hastings, President of the P. A. of A., made a flying trip to New York this week. He called at the office of THE PHOTOGRAPHIC TIMES and seemed to be in excellent health and spirits.

"Cloud Pictures."—The *Deutsche Photographen Zeitung* has been subjecting Mr. Muybridge's exhibits in Berlin to some rather severe criticisms. It states that his "series photographs" are in no wise advanced beyond the standard of fifteen years ago, and that the projection and manipulation are extremely mediocre. A photograph of Queen Victoria in Trafalgar Square it characterizes as a "cloud picture in the fullest sense of the words."

Stellar Photography.—The annual report of the Harvard Observatory shows that the work of star photographing carried on under the Henry Draper fund has been active. A map has been made from observations in Peru and at Harvard which shows the stars even to the eighth magnitude from 20 deg. south to the South Pole.

Photographing the Heavens.—At Paris the International Committee who have in hand the making of a chart of the heavens have just had a meeting and arranged for the commencing of the work. It is hoped that in three years the photographic chart of the celestial vault will be finished. The photographic instruments and telescopes for the purpose are now on their way to different sections of the world for use.

Photographing the Stars.—According to a recent paper by Herr Archenhold, in *Himmel und Erde*, a new method has been devised of utilizing photography for accurate determinations of the time at which a particular star crosses the meridian. A plate is fixed up in the focus of the equatorial, on which the image of the star, supposing it to be sufficiently bright, traces a thin, straight line. A mechanical arrangement is introduced for the purpose of imparting a slight up-and-down motion to the plate every second. The regularity of the line is in this way interrupted, which enables the moment in which it is actually intersected by the image of the micrometer wire to be determined with great accuracy.

Central Africa is at present the object of all Englishmen in search of adventure or hitherto untaken photographs, and the importance of photography as an accompaniment to explorers in new regions has been so well impressed upon the public of late, that it is not likely that any future expedition will be fitted out without a more or less complete photograph equipment. We are pleased to hear that at any rate the expedition with which Lord Randolph Churchill is connected will not be deficient in this respect, for arrangements have been made by the management to capture Central Africa by means of a photographic outfit, supplied by the London Stereoscopic Co., the sensitive material adopted being several hundreds of Carbutt's films. While upon the subject of Africa, it may be interesting to note that the Stereoscopic Co. also supplied the recent Stanley Expedition with the apparatus which that adventurous traveler took with him.—*Photography.*

Some additional information has been received in regard to the Lippmann discovery. The French *savant* has written an autograph letter to Professor Vogel on the subject, sending him a specimen of his photographed spectrum. Professor Vogel appears to have made a remark to the effect that static (or standing) waves were the cause of deposition of the laminæ in the film. To this Professor Lippmann says: "There are three sorts of such waves produced by reflection from a mirror. 1. Those of Fresnel in which the interfering rays form an angle greater than 0 deg. 2. Those of Zenker, in which the angle is greater than 180 deg. And 3. Those of Wiener, in which it is greater than 90 deg., and which cannot be produced with ordinary light, and are consequently not of importance in my process. Owing to the want of sensitiveness of the plates I have hitherto employed for green and red, I have since tried orthochromatized plates with good effect."

A Colored Photograph.—A photographic novelty is now on view at the Literary and Philosophic Club, Berkeley Square, and it will doubtless be inspected with much interest just at the present time, when no little stir has been caused in photographic circles respecting the discovery of photography in natural colors. It is a colored photographic print said to have been taken directly from negatives, the process adopted having been successfully carried out by Mr. F. Bligh Bond, architect, who is also the honorable Secretary of the Bristol and West of England Amateur Photographic Association.

The photograph is of cabinet size, and is a view of Land's End. It is a chromo-collotype, and is printed in blue, carmine and yellow, from a set of three negatives. As intimated, the print is produced directly from negatives, which it is claimed have undergone no retouching or manipulation beyond the chemical development. The principle involved is the selection of the colors of nature in the negative and their recombination in the print, which is said to be permanent. The photograph, which is dated August, 1890, is certainly a charming little picture. The coloring of the rocks and the sea is especially remarkable for its naturalness and beauty, while the blending and shading of the tints are characterized by the utmost delicacy. The print cannot fail to excite the admiration of all amateur photographers.—*London Court Journal.*

An electric lamp outfit for photographers' use has been brought out by M. Radiguet, a well-known French instrument maker. It is designed to furnish an even, steady light for use in developing plates. The apparatus consists of a globe containing three bichromate elements, connected in tension; they supply an incandescent lamp of five volts. The zincs employed for the battery are mounted in such a manner that it is very easy to change them when they are used up. A central support enables them to be quickly submerged in the liquid, in order to make the battery work, and to be drawn out when the operation is concluded. The reflector, containing the electric lamp, can be moved round the apparatus; moreover, it turns on an axle which enables it to be directed downward, and thus to light up the developing vessel. For the purpose of photographic operations, the reflector is supplied with a movable red lantern—a lantern of any other color may be substituted for this, or it may be suppressed altogether when the lamp is used.

Like Him but Better Looking.—A local photographer of Boston tells a story of a young man who came into the studio one day and asked nervously if he might have a little conversation with him. The visitor was painfully ugly, and, after some awkward blushing and indefinite allusions, he asked the artist if he supposed he had among his samples a picture of any young man who looked like him, but was better looking. "What do you mean, young man?" asked the photographer. "Well," replied he, making a clean breast of it, "I am just engaged to be married. The young lady lives out west. She is going home to-morrow. She says she thinks I'm so good she doesn't mind my being homely, but she wants a good-looking picture to take home with her to show the girls."

Too Faithful a Portrait.—Photographers have many difficulties to contend with in the pursuit of their calling, and one of these is trying to please all of their patrons. One of the most prominent and conscientious artists in Brooklyn told me the other day that he had about concluded not to try and give satisfaction to his patrons.

"Why," he added, "the more I endeavor to please them the farther I come from doing so. It was only the other day a man came in here as mad as a hornet. He brought a picture with him. It was one of his mother-in-law, I believe, or perhaps a more distant relative.

"'Look at that!' he snarled, as he removed the wrappings. 'What do you think of that?'

"'Why,' I said, 'I thought it was a most faithful portrait of the lady.'

"'Yes,' he almost howled, 'that's where the trouble comes in; that's the reason she's made my house as hot as a furnace and my life a daily torment. Yes, that's the trouble. Don't you see the portrait is too blanked faithful? See if you can't do something with it and tone it down or touch it up—anything to re-establish peace in the family.'

"Now what do you think of that," said the photographer, as he heaved a sigh.—*New York Herald.*

It is a well-known fact that theatrical women take far better photographs than those out of the profession, and the rather stupid question is often asked why this should be. A Broadway photographer was complaining of the trouble he had with his unprofessional customers, because he failed to make as striking pictures of them as he did of the stage beauties.

"I am tired of explaining to ladies," said he, "that as long as they do not look like actresses out of a picture they should not expect to in one. You will find that the very woman who would disdain to have a theatrical appearance on the street is set on having it in a photograph. She wishes to look dashing, assertive, and passionate, and is never satisfied when I make her her own sweet self. Now, I cannot pose ordinary women as I can an actress, for the reason that they haven't the ability to fall into the attitude I want. Then, again, they are usually unable to throw the particular expression into their faces that they wish to have there, and this an actress can do. Above all a lady not of the profession seldom makes up her face when she is photographed, or, if she does, it is badly done. I always touch up a woman's face a bit with crayon if she will allow me, but she usually won't. The skillful actress makes up in a pronounced manner, her eyes heavily shadowed, and

her lips made blood red. I can soften where I cannot accentuate in finishing a picture, and so when these exaggerations of the actress are toned down, her eyes merely look large and brilliant, and her mouth clearly defined. Its the same way with the men. An actor knows how to pose, to begin with, and as a general thing he makes up his face, as he invariably does on the stage. There is really no use of men and women in private life hoping to get photographs that will be as striking and satisfactory as those of actors and actresses, unless they are willing to take a course of dramatic training, and study the art of make-up. I am thinking of hanging out a sign saying that I cannot guarantee to make the simple village maiden come out in a photograph like Mrs. Langtry, or the clerk like Mr. Barrymore. The complaints of these people are wearing me out."—*New York Sun.*

Roll Holders seem to be in great demand with the manufacturers at least this spring. In addition to the Blair roll holder we hear of another new one, designed by Mr. Whitney, which will soon be put upon the market.

We have received so many inquiries as to the nature of the Blair-Anthony combination that we reprint the announcement which was made in *Anthony's Bulletin* of April 11th. It is as follows:

"The Blair Camera Company have recently purchased certain patent rights, owned or controlled by Messrs. E. & H. T. Anthony & Co., for the manufacture of amateur photographic apparatus, bromide and other papers, celluloid films, etc., as well as certain factories in New York and Brooklyn.

"Messrs. Anthony & Co. having, by purchase of stock, acquired an interest in the Blair Camera Company, arrangements have been made through which the products of all the Blair factories will be sold by them as trade agents, as well as by the Blair Company."

Photographic Societies.

AGASSIZ ASSOCIATION, MANHATTAN CHAPTER, NEW YORK B.

The regular monthly meeting was held Friday evening, April 10th, at the office of Mr. W. S. Miller, No. 141 East 40th Street, at 8 P.M. The aristotype process was explained by Mr. E. B. Miller, and an informal discussion on the results, beneficial or otherwise, of our recent exhibition of photographs was a feature of the meeting.

Our first photographic exhibition, as held the first week in March, was a brilliant success. About five hundred visitors were present during the several days the exhibition was open, and we have yet to hear of one who was not pleased with the display. Very prettily engrossed diplomas were awarded as follows:

For the best exhibit, to Mr. H. T. Rowley.

For the best landscape, to Mr. H. Bucher, Jr.

For the second best landscape, to Mr. H. T. Rowley.

For the best portrait, to Mr. F. Albers.

For the best group, to Mr. W. T. Demarest.

The awards seemed to give entire satisfaction to the exhibitors and their friends, and the thanks of the Chapter are due the gentlemen who so kindly acted as judges of the exhibition—Messrs. L. W. Seavey, A. T. Schauffler and E. W. Newcomb.

The Fifth Annual Exhibition of Chapter No. 949, New York Z, was held at the rooms of that Chapter, No. 49 West 20th Street, Friday evening, April 10th.

Chapter 949 also announces its fourth course of lectures, to be held at 49 West 20th Street, as follows:

April 17. "People and Scenery of the Bahamas." Dr. J. I. Northrop.

April 24. "Gems and Precious Stones." Professor Sanderson Smith.

Propositions for membership and all communications on Chapter matters should be addressed to

W. T. Demarest,
Secretary,
339 West 27th Street, New York City.

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

The twenty-ninth annual meeting of the Photographic Society of Philadelphia was held Wednesday evening, April 8th, at its rooms, Thirteenth and Arch streets. The annual report of the President and Directors was presented, being the first report since the reorganization of the society in December last. A substantial growth in all lines of its work and an increased attendance and interest in the meetings of the society were shown to have resulted from the transfer of the details of management from the society at large to a Board of Directors.

Officers were elected to serve the ensuing year: President, John G. Bullock; Vice-Presidents, Joseph H. Burroughs, Edmund Stirling; Secretary, Robert S. Redfield; Treasurer, Samuel M. Fox; Directors: Dr. Charles L. Mitchell, William H. Rau, John C. Browne, George Vaux, Jr., John Carbutt, Samuel Sartain, Frederick E. Ives and George M. Taylor.

The subject of "New Developing Agents" was called up for discussion, and various experiences were given relative to the use of eikonogen and hydrochinon used in conjunction. Mr. Earle exhibited a new composition, called "phainogen"—a developing compound in powdered form for tourists' use; and Dr. Mitchell showed a "standard fixing salt" for the preparation of the acid fixing bath.

Julius F. Sachse made an interesting communication, describing some experiments in orthochromatic photography, with a view of finding a method of identifying the colors photographed.

He places strips of colored paper having a close approximation of color to the colors in the object to be photographed, and in same plane with the object; which in the specimens exhibited was a stuffed parrot of brilliant plumage, and a case of butterflies of varied and brilliant colors. Both were photographed on Carbutt's commercial orthochromatic plates without color screen, and also on the same maker's special plate.

Lantern slides of these negatives were shown on the screen, and the value of the orthochromatic plate in securing color value was very manifest, and would have been further manifested had a yellow color screen been used.

A discussion relative to exposure meters also took place, and a resolution was adopted providing for the appointment of a committee to consider the feasibility of inaugurating a movement for the establishment of a standard method of marking the sensitiveness of dry plates by American manufacturers.

The Editorial Table.

From the A. N. Kellogg Newspaper Company we have received a convenient rubber eraser which is much appreciated by us.

From A. R. Frank, of Cambridge, Mass., we have received a 6½ x 8½ portrait study, entitled "From the Old Country." It is an excellent character piece, well conceived and well executed. The vignetting, however, is not so well done.

From Captain A. G. Grant, of Columbus, Ga., we have received a pretty 5 x 8 vignette photograph, showing a group of children and dogs. Captain Grant's specialty is illustrating, photographically, railroads, counties, cities, and for land improvement companies.

Mr. Gutekunst is omitting scarcely an eminent American in any walk of life from his important series of portraits from life. We have already referred to his Longfellow, his Walt Whitman, and his George William Curtis, but have not as yet spoken of the equally satisfactory portraits of James Russell Lowell, the late Rev. Dr. Howard Crosby, and also the late Lawrence Barrett. These portraits, like their predecessors, are in two sizes: the imperial panel, direct from life, and a cabinet size phototype, which is really a photograph in printers' ink. We expect to present our readers with the smaller portrait of one or more in this noteworthy series before very long.

PHOTOGRAPHY.

THERE 's a land of dreams, not known to many,
That round about us lies,
Nor is its mystic beauty seen by any
But those whose reverent eyes.
Trained oft by loving care in still night snatches,
Have watched by ruby light unfold
The magic image whose fair wonder matches
Fabled miracles of old.

There 's a pleasure and its pains known but to few
That open lies to all;
Whome'er its fond and simple magic will pursue,
Dwells e'er within its thrall.
In the waiting darkness it draws scenes
Of beauteous life and light,
Till all the face of nature, by its means,
Is beautified and bright.

There 's a land of beauty known to few,
That open to us lies;
Its pleasures and its pains will lead us to
An earthly paradise.
Our guide 's an humble teacher, that does show
The beauty all divine
That lies in all God's nature here below,
Fast locked in every line.

Frank Daral.

Record of Photographic Patents.

449,733. Instantaneous Photographic Shutters. Thomas R. Dallmeyer and Francis Beauchamp, London, England.

Wasted Pains.—Photographer (to colored beauty): "Please turn your face so it will be a little more in the shadow."

Colored beauty (indignantly): "Fo' de Lawd's sake! whaffo' yo' thinks I put all dis white powder on?"—*Texas Siftings.*

Queries and Answers.

55 J. P. H.—Can bromide enlargements be made with the single achromatic lenses of the Waterbury series, and are these lenses adapted for the making of portraits.

55 *Answer.*—The Waterbury lenses can be well used for either purpose, but a much longer exposure than with a combination lens is necessary in either case. Were you to enlarge a 4 x 5 negative of average density, to an 8 x 10 upon Star bromide paper, by direct daylight, take the A lens, stop $\frac{f}{20}$, and expose for from thirty to forty seconds, and with the same lens, stop $\frac{f}{15}$, a Carbutt Eclipse plate, the subject lighted by an ordinary window, and exposure of from ten to fifteen seconds, perhaps, will give a good negative. If properly managed, portraits taken with the Waterbury lenses can vie with those taken with more costly objectives.

56 In reply to R. W. B: Coined gold is good enough for the preparation of chloride of gold, in fact many photographers prefer it, on account of the copper contained, as certain virtues are ascribed to chloride of gold in combination with chloride of copper. You need not cut the coin, but take the smallest you can get, one-dollar pieces, and place in a porcelain evaporation-dish. Pour over it sufficient aqua regia (one volume of nitric and two volumes of muriatic acid), heat in a sand bath, when the gold will dissolve gradually, red vapors being emitted. After all is dissolved, evaporate to dryness by a slow heat, dissolve again in pure water and filter. The solution can be used in that state, or if it is preferred be again evaporated to dryness. Two one-dollar gold pieces will yield about 120 grains of pure trichloride of gold.

57 CHARLES COLLINS, Bellevue, Ia., March 16th, asks: "(1) How can I print the negative of print No. 1 without showing that small figure and yet retain the size? How can I print and have a black background? (2) In print No. 2 how can I fix the negative so that that large spot will not show? Spotting after toning shows too plainly, as I do not burnish. (3) Can an amateur develop and use the kodak films successfully."

57 *Answer.*—(1) Cut out a paper mask (sensitized paper, which will turn black eventually), place it on the glass side of the negative, and print under tissue paper. The result will be the figure on a white ground. Afterwards cover up the figure and proceed as before. By shading the background during printing gradually from the top downward, very artistic effects can be had. Similarly, printing in of figures or the introducing of chemical backgrounds is done frequently in professional ateliers, but the work requires patience and circumspection. (2) We would simply vignette it. Do not place the vignetter too far from the negative, or the spot might still show. (3) Certainly, if he knows how to do it.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

W. I. LINCOLN ADAMS, Editor.

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For almost twenty years I have been in the habit of spending a part of every winter in these climates, and have experimented with various forms of cameras and all the best lenses, and finally gave up hope of getting as good results from instantaneous exposures as in cooler and drier lands.

In all my work done through the the Windward Islands and along the Spanish Main, and from the hands of professionals there, there came the same imperfect and unsatisfactory prints, when anything like shutter work was attempted at a quick speed.

So, when my preparations were made for the usual trip this spring, I called upon the Scovill-Adams people for something to make pictures with, and they recommended the Triad. As it was light and compact, I took it along without much hope of success, but because I never travel without a camera. At Santa Cruz the air is drier than further south, and I made a few shots. At St. Kitts humidity is so great that it is rare to see mountain peaks clear of clouds, and all previous work had amounted to nothing. The local photographer had no instantaneous work, and I made a few exposures more as an experiment than anything else, continuing to do so as we went further south. At Trinidad I had an opportunity, through the courtesy of Mr. Sieler, to have the films developed, and, to my surprise and gratification, found that I had as clear and fine a lot of negatives as I had ever made before by time exposures.

Showing some of them to Captain Bulmer, of Port of Spain, an expert amateur, he was so pleased with their beauty and the Triad that he kept the camera for his own use when I left the island.

With this experience I am pleased to say that, in my opinion, the Triad camera is the best one that I am acquainted with for shutter work in the tropics; in fact, the only one that I have used that gave good results.

Studio Changes.

Grinnell, Ia. Mr. A. L. Childs has sold his gallery.
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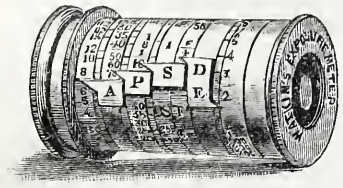
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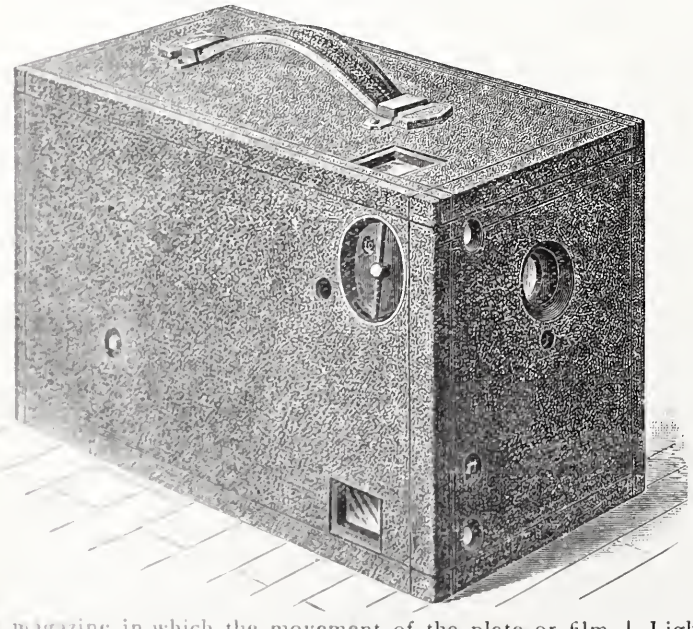
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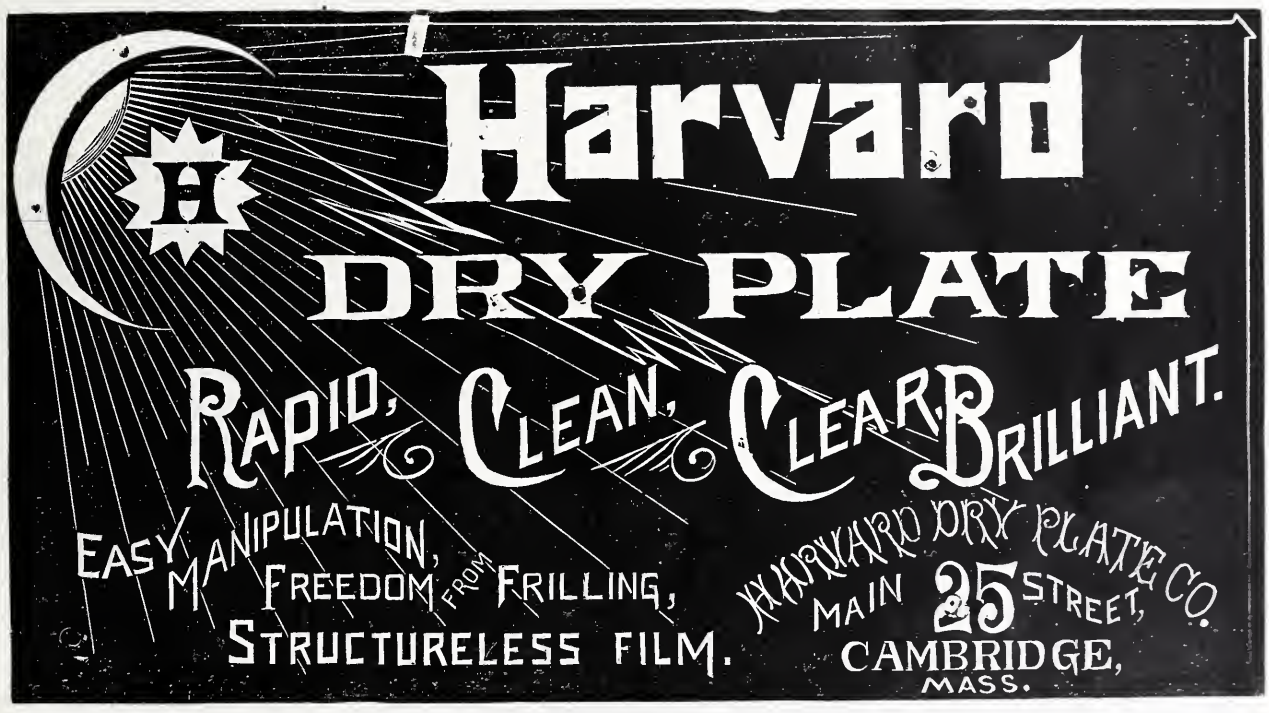
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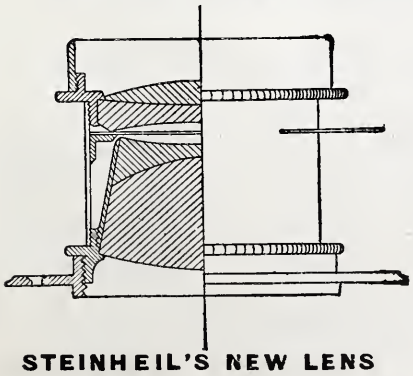
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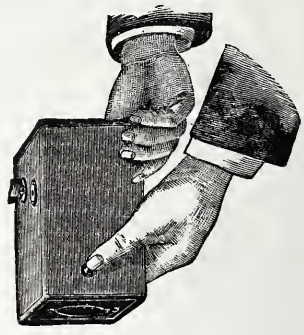
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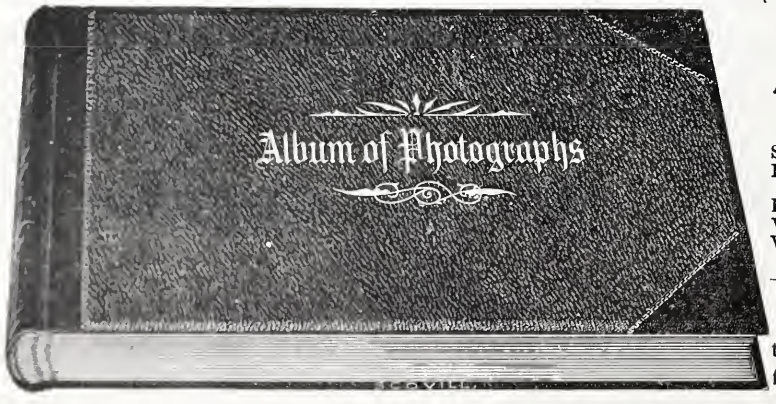
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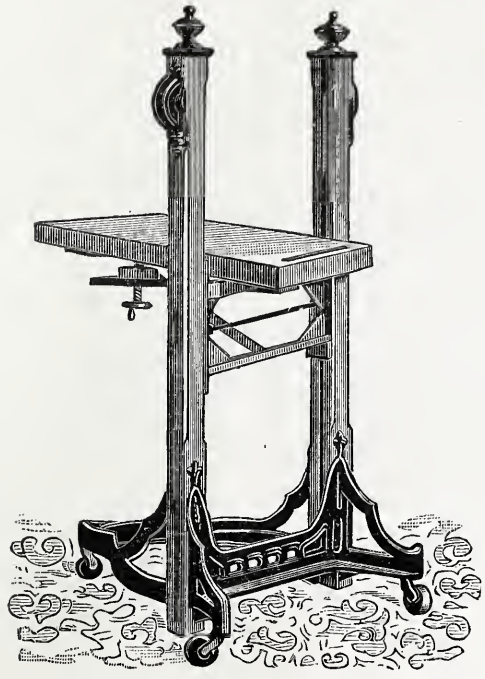
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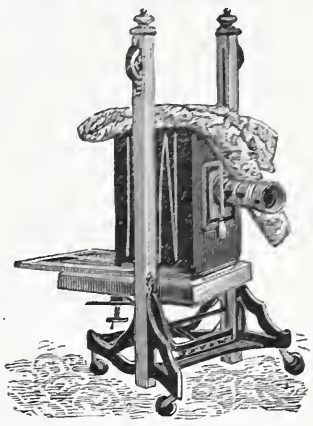
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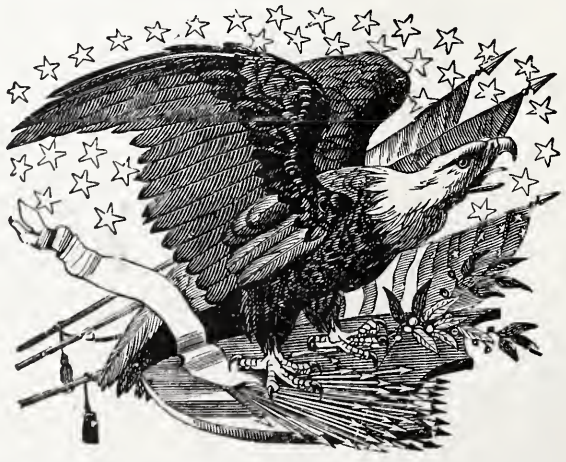
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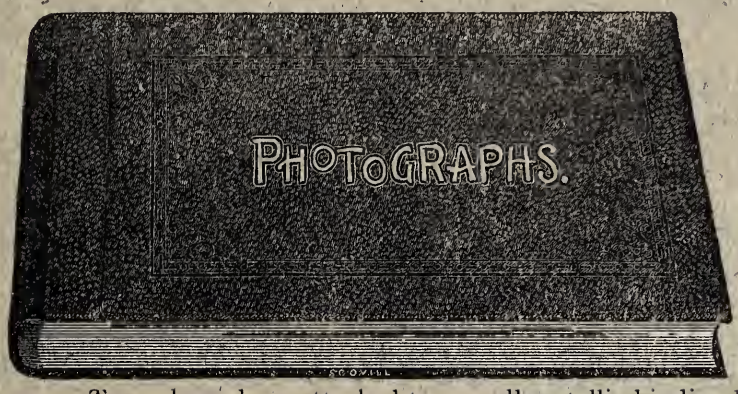
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In the Blue Grass Country.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, APRIL 24, 1891. No 501.

IN THE BLUE GRASS COUNTRY.

So much is heard of the famous blue grass region in Kentucky by those who have never had an opportunity of seeing a characteristic bit of this beautiful country, either in pictures or in nature, we are sure that many readers of THE PHOTOGRAPHIC TIMES will especially enjoy the picturesque selection from nature which Mr. Horace B. Pearson photographed for us while on a recent trip through Kentucky.

In speaking of this picture in the letter concerning the view of "Hickman Creek," which we presented to our readers some weeks ago,* Mr. Pearson said: "I rather prefer this negative, which I took especially for THE PHOTOGRAPHIC TIMES. It was taken near the same place, only at the top of the embankment. Both negatives were made on Carbutt 'Special' plates, and the exposure for this one was about one second and a half."

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THERE is perhaps no process connected with photography to which the instructor is asked oftener to return than the simple process of toning. It is a process which beginners seem to have most trouble in mastering, and a process which advanced workers are experimenting with perhaps more than any other.

In spite of the many new printing methods which have recently been introduced, simplifying in many instances the work of completing the finished print, albumen-silver paper still holds its own, and is probably more widely employed to-day than ever before. With a little care, and by following a few well-defined directions, there is no reason why there should be any trouble in securing agreeable, uniform tones on albumen-silver paper of any well known brand.

There are a great many toning baths which may be used for the purpose, the neutral or alkaline toning solution being perhaps the one most generally used. With this bath the acidity of the gold chloride is neutralized by alkali or alkaline salt, and it is upon the character of the alkali used to neutralize the bath that the tone of the print depends—carbonate or bicarbonate of soda tends to produce black tones; and carbonate of lime, purple shades. Borates and tungstates produce positive blacks; acetates cause reddish tones, and chloride of lime makes bluish black, with sometimes a rosy tinge. Of course, other factors influence the tone to some extent, such as the thickness of the albumen film, the condition of the sensitizing and toning bath, as to temperature, etc., and the density of the print; but with a little experience it is soon learned just what causes produce certain effects, and thus it becomes an easy matter to produce any desirable tone with little or no variation.

With the advent of printing-out emulsion papers the orthodox alkaline toning bath has been discarded somewhat in favor of the ancient combined toning and fixing bath. For the compounding of the combined bath many and very complicated formulas have been recommended, some of them finding warm advocates, while others bitter opponents, on account of the fact that the tone obtained with them is not solely produced by gold, but is due also to sulphuration, the forming of sulphide of silver on the print. That a

* See the issue of February 13th.

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properly conducted simultaneous toning and fixing is capable of producing permanent prints, so far as we are able to judge, is proved by the fact that prints subjected to the operation more than thirty years ago have retained their whites and depth of tone to perfection.

Chloride of silver emulsion papers are becoming more and more popular, and threaten the albumen paper at every point, especially in the amateur's laboratory. It is ostensibly of better keeping quality, whether on a collodion or gelatine basis ; with it much labor is saved and the time of fuming the paper in ammonia. If we adopt the combined toning and fixing bath we avoid the washing of the print before toning, and it yields very fine prints of any desirable tone, even when printed from feeble or thin negatives. These points are much in its favor, and when the amateur considers all these advantages, it can only be wondered at that the adoption of the paper is not more general than it really has been.

The greatest error committed in the use of the combined fixing and toning bath is probably in its unlimited employment for a large number of prints. When the solution has been repeatedly used ; when a black precipitate has deposited in the bottle holding it ; when the prints toned in it do not pass from yellow to brick red, bluish-red, purple to black, but assume a black color without the intermediate tones, an exhaustion of gold is denoted, and sulphuration takes place at once. Such prints cannot possibly stand for any length of time.

To avoid these effects we have adopted a different method of proceeding, and add to the hypo solution just as much gold as is wanted for immediate use and no more, and then tone in the same solution but once. We prepare a solution of 4 ounces of hyposulphite of soda and 6 drams of alum in 20 ounces of water, add to it 1 dram of freshly prepared chloride of silver and ½ dram of a 10 per cent. solution of nitrate of lead ; allow the turbid solution to settle for a day or two, filter and keep in subdued light and in well-stoppered bottles. It will remain clear and limpid. Then prepare a second solution : 30 grains of chloride of gold and sodium in 8 ounces of water and keep separately.

Were you to tone and fix five 5 x 8 or ten 4 x 5 prints on omega, aristo, or similar paper, take 4 ounces of the first, the hypo solution, and add to it drop by drop and by constant agitation ¼ of an ounce of the gold solution. The bath is now ready for use, and will leave a thoroughly fixed proof of any desirable tone within from nine to twelve minutes, but after the above-mentioned number of prints have passed through it, the gold is probably exhausted, and the bath unfit for further use. After the desired tone is attained, wash at once in running or several changes of water. To merely immerse will not arrest the action, and toning will continue as long as there is a trace of the bath present. For this reason it is advisable not to tone quite as far as desired.

The addition of alum may be omitted with collodion paper ; with gelatine it is a necessity. Chloride of silver and lead accelerate the action, and as the bath is used but once, no fear need be entertained of the injurious actions of the derivatives of the fixing process.

Fumed ready-sensitized albumen paper may be toned in the same solution, but it requires a longer time than gelatine emulsion paper. Previous to fixing and toning, the ready sensitized paper should be washed in several changes of pure water.

EDITORIAL NOTES.

A communication to an esteemed contemporary treating of the methods of printing with the salts of iron, speaks of a preparation of ferric oxalate, and says, strangely enough, that it crystallizes in beautiful green crystals. We are surprised to see such a statement as this in this periodical, for it is a well-known fact that, while the double salts of oxalate of iron with platinum or sodium crystallize, the single oxalate salt never does. By prolonged evaporation it may be reduced to a syrupy substance, which then becomes a basic salt. The author evidently means the single salt, for he describes the method of producing it, a method which was previously described in an editorial note on page 61 of The Photographic Times for February 6th.

The art critic of the *Evening Post* adds to a review of a recent article in the *Gazette des Beaux-arts* on the beautiful antique statue in the Louvre gallery, the "Victory of Samathrace," the following remarks, which may perhaps point a moral to some of our own process-workers :

"The heliogravure illustration to the article in the *Gazette* is excellent, with the grave fault of all the plates of Dujardin, that he paints out the background of the figure instead of photographing it against a white screen; the painting out, however well done, impeaching, if not falsifying, the outline of every figure and destroying the roundness and relief of the photograph in any case. This gives it the effect of being cut out in tin. A photograph with a painted-out background or sky ceases to be a scientific document."

A Timely Suggestion in Regard to Debarred Immigrants.—General O'Bierne, Assistant Superintendent of Immigration, has suggested that immigrants debarred from landing at this port be photographed at the barge office, before they are returned to the steamships to be taken back to Europe.

Then before each vessel on which such immigrants had been returned sails, let officials from the barge office, with a list of the names of such immigrants and their photographs, board the vessels, and when the roll of passengers is called, see that names and photographs correspond.

The General is being highly commended for this timely idea. Colonel Weber will give it further consideration and it will probably be adopted.

PHOTOGRAPHY IN CHINA.

I am writing at Tien-tsin in North China, the nearest seaport to Pekin, about 80 miles distant. During the winter months the river is closed to navigation, and this letter goes to Shanghai by the pony post of the Customs, to reach the mail steamer. The winter is, therefore, a period of inactivity in business, and the relaxation is seen in the frequent social gatherings and winter sports. During the entire season the air is clear and dry, and the sun shines bright in a blue, cloudless sky.

The Tien tsin Amateur Photographic Association was organized on January 28th of this year, with eighteen members. The secretary is Mr. H. J. Bostwick. At the first regular meeting a demonstration of the process of development with eikonogen was made by the present writer. As introductory to the subject of developing the following remarks were made.

The formulas for developing with either pyro or eikonogen are numerous and some of the preparations are most wonderfully made. For my own use I prefer the simplest possible combinations, and I would recommend the following as most convenient:

ALKALI SOLUTION.

Soda carbonate (cryst.).....137 grains
Soda sulphite (cryst.).....180 grains
Water..... 8 ounces

To each ounce of this solution, when required for use, add

Pyro.....2 to 3 grains

Or

Eikonogen*.....6 to 8 grains

ACCELERATOR.

Saturated solution of soda carbonate. Add a few drops to the developer, if necessary.

RESTRAINER.

Saturated solution of potassium bromide...1 part
Water.....1 part

The pyro developer can be used several times if it is not much discolored. A dark-colored pyro is quite apt to stain the plate yellow.

The eikonogen developer does not discolor so quickly and can usually be kept for weeks. But in the formula given the sulphite is not added in such excessive proportion as is often advised, and this developer is therefore not so permanent as those in which the eikonogen is all added at one time.

The advantage of the plan of adding the pyro or eikonogen when required for use is greater for the amateur than for the professional operator; indeed, it is not to be recommended for the latter because it is rather more troublesome. But the amateur saves his chemicals by only mixing his developer at the time and in the quantity required, and he has always a fresh solution of known strength to work with. This is important. A pyro solution especially changes more or less when exposed to the air. For this reason, made up developers sold in the shops are not to be recommended. They do very well when first opened; but if kept long afterward they are almost certain to deteriorate, particularly in warm weather. On the other hand, if prepared with sufficient sulphite to keep under all circumstances, they will not be perfectly efficient as developers. The sulphite itself rapidly oxidizes in the air.

There is another objection to ready-made developers. Their strength is not known, and they are intended for use with plates properly exposed Now, who shall say what is the proper exposure for a plate? This is a question not yet brought into discussion, although writers are constantly speaking of "properly exposed plates." In my opinion the right exposure of a plate varies according to the developer. It is no more a constant than are the seconds of time counted by different individuals. It is a matter of alkali and pyro, or other reducing agent, and bromide in the developer. In the developer given above there is not an excess of alkali, and there is no bromide. My own exposures are made to suit that developer. But suppose another person, using a developer with the same proportion of alkali and bromide in addition, were to develop one of my plates, he would probably say it was under-exposed. He would be right according to his standard, but wrong according to mine. Nevertheless, he would be able to bring up the picture by adding more alkali to his developer; but by so doing he only overcomes the restraining action of the bromide, and the addition of alkali increases

* Eikonogen should be finely powdered to make it dissolve readily.

the liability to stain the plate yellow and of softening the film. For these reasons I prefer to work with less alkali and no bromide.

Now as to the part played by the pyro or eikonogen. These are the active agents in reducing the silver to the metallic state. The silver exists in the unexposed plate in the form of a bromide. After it is exposed those portions of bromide acted upon by light suffer an invisible and as yet unexplained change and become amenable to the action of the developer. The developer acts by reducing the changed bromide to metallic silver. The active agent in effecting the reduction is the pyro or the eikonogen. But these agents only act in the presence of the alkali, and the energy of their action is determined by the proportion of alkali present. Consequently, an under-exposed plate requires more alkali to bring out the picture than one properly exposed. It also follows from this that one may get the same result by developing an under-exposed plate with an excess of alkali, and an over-exposed plate with a deficiency thereof. This is true so far as the development of the lights and shadows, the details of a picture, are concerned. But we have to consider also the strength or density of a negative, for every detail may be shown in a negative which is still a very bad and useless one.

The opacity of the metallic silver reduced in the film is dependent upon the proportion of the reducing agent in the developer. It also depends upon the quantity of silver bromide in the film, and for this reason some plates give more density than others with the same developer. But we are not now discussing the qualities of plates, and this fact may be disregarded. Obviously, then, with a given proportion of alkali, the more pyro we add the denser the deposit will be. The perfect developer, therefore, is one containing just the amount of alkali required to bring out all the lights and shadows, combined with the proportion of reducing agent—pyro, hydrochinon, or eikonogen—to give good printing density. This is our normal developer for correct exposures.

Unfortunately, we cannot always make our exposures just right, and therefore it becomes necessary to change the developer to correct errors of this kind An under-exposed plate, as already indicated, requires an addition of alkali to the normal developer. The effect of the excess of alkali is to bring out the details. But then the lights will develop and grow dense before the shadows are strong enough to print. Now, we have learned that the pyro gives density. Obviously, therefore, such a plate requires not only strong alkali for the shadows, but also weak pyro to prevent the lights from getting dense too rapidly.

The proper course of proceeding is to dilute the developer with water, thus reducing the proportion of pyro to one-half, for example, and then add a sufficient quantity of alkali to carry on the development. Thus, although the lights develop first, they do not become dense after protracted development, and there is a sufficient quantity of pyro to slowly bring out the details in the shadows if the development is continued. But probably no part of such a negative, not even the most lighted parts, will become dense enough for a good negative. Therefore, when all the details are well out, finish the development with a fresh normal developer to give the required density.

The treatment of an over-exposed plate is just the opposite. In this the difficulty is to get density. The plate developed with normal developer will have all the details, but, owing to a peculiar action of too much light on a gelatin plate, the light parts develop without density, and therefore the contrast of light and shadow is not sufficient. Obviously to get density we must add pyro, and to prevent too rapid action, reduce the proportion of alkali. But we can do more than this, for by adding a drop or two of the solution of potassium bromide to two ounces of the developer the action of the latter is greatly restrained. The time of development may be thus very much increased, but only patience will give good pictures with plates under or over exposed.

Romyn Hitchcock.

Reports of the different officers at the late annual meeting of the Society of Amateur Photographers of New York showed a marked increase of interest in photography. The Secretary's report, for instance, showed that sixty members had been added to the roll during the year. This certainly does not look as if interest were dying out in amateur photography.

THE TONING OF PHOTOGRAPHS CONSIDERED CHEMICALLY, HISTORICALLY, AND GENERALLY.

Chapter III.

History of Toning Processes.

Hardwich upon Toning.—In March, 1855, T. F. Hardwich published the first edition of a book which became so well known among English work-

ers that it was dubbed the "Photographer's Bible." The author was an excellent chemist, and he did much in those early days to put the scientific side of photography upon a sound footing. His book has since passed through nine editions, having been revised by Messrs. Dawson, Hadon and Traill Taylor, the date of the latest edition being 1883; and it is still a sound and useful work. The long period of time (nearly thirty years) over which the issue of the nine editions extends, and the changes necessarily made in each edition in accordance with new discoveries, cause the study of this volume to have an important bearing upon the history of photography.

In the first edition the word "coloring" is used instead of "toning," and it is pointed out that when a bath of "old hypo" is used, the dark tints produced are due to the combination of sulphur with the silver of the print, forming sulphide of silver.

It is also carefully pointed out by Hardwich that, when chloride of gold is added to hypo, not only is the double salt called "sel d'or" produced, but also tetrathionate of soda, which latter salt is readily decomposed, liberating sulphur. Thus a *newly made* "coloring" bath of this kind does, it is true, color prints by a deposition of gold, but *old* baths effect the work mainly by means of sulphur. He adds that crystallized sel d'or (which is a double hyposulphite of gold and soda freed from tetrathionate) can be used for the coloring bath.*

In the second edition of Hardwich (September, 1855) the word "toning" replaces "coloring." The sulphur toning bath of old, or acid hypo, is still the first one mentioned; Le Gray's method is next given; then that of toning and fixing in one bath containing hypo and gold; and, lastly, a new method by Thomas Sutton, in which crystallized sel d'or is dissolved inwater acidified with hydrochloric acid.

In the third edition of Hardwich, June, 1856, sulphur toning is condemned and Sutton's acid sel d'or bath recommended for toning; but there is an important line which shows the birth of a new epoch in toning: "M. Le Gray's process is objectionable on account of the excessive overprinting required. This, however, is to a great extent obviated by a modification which the writer has seen, where an *alkaline* instead of an acid solution of the (gold) chloride is employed."

The fourth edition (April, 1857) still lays stress on the sel d'or toning bath, and it contains the first mention, in print, of an *alkaline* gold toning bath. This bath was the discovery of Mr. Waterhouse, and will be described more fully later on.

Alkaline toning comes strongly to the front in the fifth edition of Hardwich (1859), and a formula indorsing the use of bicarbonate of soda is given, but the sel d'or bath is still strong in the running.

The last edition of his book brought out personally by Hardwich was the sixth (1861), in which there is little change; but in the seventh (1864), edited by Dawson and Hadon, the alkaline toning bath takes a strong lead, though we are told that the method of fixing and toning in one bath is "even now sometimes followed" (p. 306). The two later editions add nothing of importance.

Toning by Other Metals than Gold.

It has been proposed to use such metals as palladium, iridium, etc., as toning agents; and experiments have shown that pleasing tints can be obtained by their use, but for various reasons—chiefly the enhanced expense—none of them have come into use.

But with one metal—platinum—it is possible that the case may be different.

The use of *platinum* as a toning agent was first proposed by M. Caranza in the French journal, *La Lumière*, for February, 1856. A Scotchman—Burnett—experimented in the same direction in the years 1858 and 1859; and quite recently (1888) Mr. Lyonel Clark has obtained considerable success by the use of this "noble" metal.

Toning with Platinum.

The only metal which is likely to compete successfully with gold is platinum. The best salt of platinum by far for toning purposes is the "chloroplatinite of potassium," K_2PtCl_4 (not the ordinary chloride or bichloride of platinum, $PtCl_4$. Make up a stock solution of 60 grains of this salt to 2 fluid ounces of distilled water. For the regular toning bath use:

Stock solution of chloroplatinite	1 fluid dram
Nitric acid	2 drops
Water	8 ounces

The prints are to be well washed, and are afterwards immersed upon the toning solution. When the desired tone is obtained (and this bath yields tints from brown to black) they should be removed, washed in alkaline water, and fixed in hypo as usual. This method is due to Mr. Lyonel Clark; it answers better with matt-surface than with albumenized paper. By using the bath stronger (only 2 ounces of water instead of 8), much blacker tones are obtained.

* Sel d'or was discovered by MM. Fordos and Gelis in 1843, and was known commercially as "Gelis's salt."—W. J. H.

Classification of Toning Processes.

We are now in a position to enumerate the various toning processes which have been practiced since the discovery of photography. Having done this, we shall consider, in turn, the chemical changes upon which each process depends.

I.—Sulphur toning..... { 1. By old hypo. 2. By acid hypo.

II.—Gold toning... { 1. By mixture of hypo and gold chloride. 2. By sel d'or. 3. By acid gold chloride. 4. By gold chloride plus an alkali.

III.—Platinum toning.

IV.—Toning by other metals.

W. Jerome Harrison.

(*To be continued.*)

PUT METHOD IN YOUR MADNESS.

Summer days are coming on apace and Dame Nature will soon have to hold her ears and shut her eyes, as femininity does when anything is "going off," for a thousand and one gleaming lens-tubes will be aimed point blank at her to deliver their fire.

The summery amateur, whose name is legion, will be stealing around taking the old lady of ever-young beauty in full dress or *deshabille*, banging at her in fact in whatever condition or position he thinks "looks pretty."

As is usual, such a purposeless method is productive of many results, good and bad, but somehow it neither gives a satisfactory equivalent to the expenditure of time, labor and money, nor makes a proper showing of these to people who are honored with an inspection of the results. Much has been done, perhaps, but there is often a dreadful sameness in these pretty little views. They are nameless little things. You show Smith a delicately rendered little study of a brook. "That's very pretty," says he. "Yes," say you, warming up, "that's on Skunk's Run, up in the Adirondacks." "Oh, indeed!" says he, but it don't add to his interest one bit. You might as well have said Maine or California, or ten miles off in New Jersey. Then you show him a bit of forest or a view of rolling pastures, and as you do so you wish that the development of some systematic idea was shown in your work, giving a coherent unity to your pretty but nameless little odds and ends.

And now, after all, why should there not be such unity? Why not do a little less work in quantity perhaps, and increase the quality to a very satisfactory point by showing some systematic development of artistic ideas in your work? In other words, why not illustrate some story or poem?

You cannot, of course, attempt any such magnificent results as our professionals have obtained by elaborate accessories, expensive costumes and skillful studio effects, but you can get beautiful and artistic results by using the views Dame Nature gives you ready-made, and by impressing the men and women and children around you into service. Indeed, it seems to me that our amateur clubs might well encourage such efforts by offering prizes.

As to subjects, it seems almost superfluous for me to offer suggestions. Probably every young woman or man will have a line of some favorite little poem ring through the head as she or he reads this. However, Tennyson's Song of the "Brook" would be a splendid subject:

> "I come from haunts of coot and hern;
> I make a sudden sally,
> And sparkle out among the fern
> To bicker down a valley," etc.

Or, if you are on the New England coast, try the—

> "Break, break, break,
> On thy cold gray stones, O sea!"

How about a moonlight effect in—

> "Sweet and low, sweet and low,
> Wind of the western sea," etc.

I suppose my readers know that they can get this moonlight effect by taking an under-exposure against the light when the sun is at least half way down from the zenith.

Have you a pretty sister or cousin, or perchance, one dearer yet? Tennyson should be a mine of suggestions for you in taking the "queen rose of the rosebud garden of girls."

Again: let us take the next volume that comes to hand and turn over the pages. It is Whittier. Take the "Frost Spirit," say, for winter work:

> "He comes—he comes, the Frost Spirit comes!
> You may trace his footsteps now
> On the naked woods and the blasted fields,
> And the brown hill's withered brow."

Why, what would otherwise be a dismal photograph would be poetical and interesting as the first illustration of this poem!

And there are typical American pictures of ordinary scenes made beautiful in "The Huskers," "The Corn Song," or "The Pumpkin:"

"O ! fruit loved of boyhood ! the old days recalling,
When wood-grapes were purpling and brown nuts were falling ;
When wild ugly faces we carved in its skin,
Glaring out through the dark with a candle within."

Or take "The Lake-Side" as a subject; or "Memories," or "Pictures."

There is hardly any use in continuing to name what my reader can look up for himself in any of the great English or American singers. Some of them would call for bold attempts at effects, but how beautiful the result would be if successful ! Longfellow's "Building of the Ship," "The Light-house," or "Daybreak," for instance, would be harder than "Snow-flakes," or "A Day of Sunshine," but infinitely more interesting.

Or if you did not wish to take a whole poem from those mentioned, or from Burns or Wordsworth, or the rest, you might take selections and quotations, and thus have an illimitable field open.

Those who love flowers will find many books of selections about them to be illustrated ; and for the artistic woman who loves children, and has pretty ones to practice on, there is a wide field in illustrating Mother Goose.

Beautiful little volumes could be made that way and bound by a silk cord in a cover of rough colored paper. Heavy paper prints, like bromides, would not need mounting ; silver prints should be put on thin cardboard. The words may have smaller photographic headings on separate pages, or may be on the same ones as the prints ; the latter, perhaps, having an indented corner and the words run in there. The words might be written on a type writer, if you do not like ordinary writing ; but I know that if I ever set out to make a very good and elaborate set of illustrations—as I'll want some to give away, I would have it regularly printed. It won't cost much.

Frank Daral.

Correspondence.

OLD SUBJECTS.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir : I have lately noticed in THE TIMES you have made mention of receiving pictures of very old persons.

It occurred to me to add one to your list. I call it 'Retrospective," for the old gentleman lives in the past, converses freely of scenes and events of the war of 1812, in which he was a soldier. He was born June, 1786.

He lacked 23 days of being 104 years old when the negative was made. He is still alive and quite smart. The negative was not retouched, except very slightly.

I add a few other samples of my work, to show what may be done in a car, every part of which is done by myself, though I am only sixty-one years old. I read THE PHOTOGRAPHIC TIMES and four other journals, so I hope to do better after I have a few years more experience.

Truly yours,

A. J. Whalen.

PITTSFORD, MICH., April 13th, 1891.

[The pictures which Mr. Whalen sends us are all excellent; especially, however, must we commend his portrait of the 1812 veteran. Mr. Whalen is a young man compared with the aged ones whom he photographs so well, and if he continues his studious habits his hopes for improvement will be well founded.—*Editor of* THE PHOTOGRAPHIC TIMES.]

Notes and News.

Fire.—G. A. Woodson & Co., well known dealers in photographic supplies at Memphis, Tenn., lost their entire stock of goods by fire, Sunday morning, April 5th. They were insured.

The New York Camera Club gave an exhibition of hand cameras at its rooms, No. 314 Fifth Avenue, Monday evening, April 20th. Most of the latest patterns of hand cameras produced with the year were shown and explained.

Rivals' Professional Work.—Mrs. L. W. H. Myers, sister of Mrs. Henry M. Stanley, is an amateur photographer, and the only one in London society whose work is said to rival that of professionals for beauty of pose and beauty.

A Panoramic Camera.—A camera by which panoramic views can be obtained has been devised by M. Damoiseau, of Paris. His camera is made to turn on its axis so as to take in the whole horizon on a strip of sensitive paper. It is alleged that the picture is clear in all its details.

Mica is now used instead of glass in Germany for the support of gelatine photographic films. It is reported to be much cheaper than either glass or celluloid, and has the advantage possessed by the latter material of being printed from either side. The sheets, either during or after development, show no disposition to turn up, remaining perfectly flat at all times.

The Cardiff (England) Photographic Society will hold an international photographic exhibition, including photographic apparatus and appliances, in the Public Hall, Queen Street, Cardiff, from the 12th to the 26th of August, 1891. Full information may be obtained by addressing John Ballinger, Free Library, Cardiff, England.

The Chicago Camera Club held its annual meeting for the election of officers and other business, at the Club rooms, Tuesday evening, April 14th. Upon the conclusion of the regular business there was an exhibition of lantern slides, with descriptive lecture by Mr. E. Burton Holmes, an enterprising member of the club, and recently elected Secretary of the Douglass-Shuey Company, photographic notions.

Photographers Disagree.—Photographers Brady and Prince had some hot words this afternoon in front of the Patent Office, growing out of the question of photographing the Patent Centennial Convention.

Mr. Brady claimed that as he had a regular permit to photograph the convention, Mr. Prince had no right to make a picture.

Mr. Brady claimed that Prince interfered with his business and swore out a warrant against him.—*Washington Critic*, April 9th.

Pittsburgh Amateur Photographers' Society.—At the April meeting of the Pittsburgh Amateur Photographers' Society, the following officers and committees were elected for the ensuing year: President, W. S. Bell: Vice President, R. F. Smythe; Secretary, J. H. Hunter; Corresponding Secretary, W. J. Hunker; Treasurer, H. W. Beymer; Executive Committee: C. C. Craft, L. S. Clarke, D. Beech, T. T. Brown and R. F. Smythe; Committee of Arrangements: T. K. Gray, J. H. Hunter and W. J. Hunker; House Committee: H. W. Beymer, George D. Heisey, E. E. Erensburg, A. R. Neeb and O. H. Darlington.

The Buffalo Convention.—Some progress has been made in renting space in the Exhibition Hall since last week. In addition to the spaces secured by the Blair-Anthony combination, W. G. Entrekin, and Cramer, we learn that William H. Lewis, formerly manufacturer of apparatus for E. & H. T. Anthony & Co., and Allen & Rowell have rented spaces, and that the Blair Camera Company has taken additional space. There appears to be a little better feeling in regard to the Convention, especially throughout the West. In New York and the East, however, there has not as yet been much interest manifested in it by photographers.

A Photographer's Fatal Mistake.—Edgar S. Tweedy, a photographer, 50 years old, died at his home, 73 East 114th Street, on Thursday morning, April 9th, from pyrogallic acid poisoning.

He used the acid in his gallery in Third Avenue, near 114th Street, and kept it with other chemicals in the dark room. He worked in the gallery on Sunday, and when he came home at night he told his wife that he had taken a swallow of the acid in mistake for whiskey, but had drunk a solution of soda at once as a counter-irritant, and did not feel any bad effects from the acid.

On Monday he worked in the gallery as usual, but came home ill at 5 o'clock. He was attended by Dr. Clements, of 1846 Lexington Avenue, but grew steadily worse until Thursday morning, when he died.

He had suffered from Bright's disease, but an autopsy made yesterday by Deputy Coroner Jenkins proved that death was due to the effects of the acid. The entire body became yellow. Mr. Tweedy's friends say there was no possible cause for an attempt on his own life.—*N. Y. Sun.*

Secret of a Successful Photographer.—"The secret of a successful photographer," said one who knows, "is in making pictures that flatter the subject. No person wishes to have a picture which accurately represents him as he appears to other people on the street. Each man or woman has a certain mental impression of his or her appearance. It may, and probably does, differ from the reality, but in order to please him his photograph must not show the crook in his nose, or the slight squint in his eye.

"It is the same feeling which prompts the tired shop girl to look in a certain window on Broadway which tints the worn face with a rosy color, and the shop girl goes on her way happy. It is curious, but true, that a glance in a mirror does not give the same impression as does a look at a well-executed photograph. This is because of the skill used by a competent photographer in the posing of his subjects. In every man's face, no matter how homely he may be, there are indications of beauty if the face is looked at from the right angle to bring out the good points. This fact is so well understood by actresses and professional people that the happiest results are always attained in their photographs."—*N. Y. Journal.*

English Ladies Daft over Photography.—Her photograph is a perfect passion with the smart London woman of to-day. Many of them spend a fourth of their pin-money in the portraiture of every possible conceivable position of themselves, their gowns, their shoulders, their hands—and even their limbs. As a consequence the photographers' trade has increased enormously. Indeed, a company of over a million sterling is being formed for the express purpose of unifying half a dozen of the studios to which the court ladies and other women of the best society are in the habit of giving their custom. The photographer is now regarded as necessary to the well-being of fashionable English society as the baker, the bootmaker and the dressmaker. Many mothers have their children regularly photographed on each birthday. Babies are photographed in their little bare skins a few days after their birth, and a copy pasted in the family Bible—a valuable record of any birth-mark. A new gown is photographed—as a matter of course, on the back of its wearer—and so is a new hat. In fact, one lady told me that she always had each of her toilettes photographed, touched up with color and placed in an album on her dressing-table. All she had to do then, when she wanted her maid to put out her things, was to indicate the number of the picture.

The photographer is now sent for on all occasions of family rejoicings. He photographs the bride as she is tripping down the steps to the carriage preliminary to the honeymoon; he photographs the wedding breakfast at the moment when papa is wishing success to the happy pair; he photographs the debutante as she looked on departing for her first ball, or on her way to the Queen's drawing-room; and he throws his camera on the sleeping form in the coffin, before it is consigned to the family vault.

These constant and continuous sun duplications of the family—little Tommy and Polly wearing short clothes until the period when Pauline got married and Thomas became a sub-lieutenant of the Guards—become a little nauseating to the American visitor, who does not care individually whether Thomas breaks his neck or Pauline runs away with her footman; but he has to take it in nevertheless. In some houses the whole of the rooms are panelled with these photographs of the family, and everywhere, in almost every corner, every table, every bookcase is laden with the family and their friends of all ages, sizes, ranks and conditions.—*The Philadelphia Times.*

A New Adaptation of Electrotypy in Connection with a Detective Camera.—There is about to be placed on the market a new form of detective camera, which is very novel in design. There is one curious point connected with its manufacture which we think is of extreme interest, and which will most probably point the way to doing work of a similar character. The most notable feature of the apparatus is a fan-shaped arrangement of metal grooves, in which the plates are stored. These grooves must be most carefully made in metal, and must each be correct in form to a hair's breadth. They could not easily be stamped, and it was out of the question to make each one by hand, so the device was hit upon of producing them by the electrotype process in copper. From a suitable mould, these pieces of metal are now produced at a comparatively rapid rate by use of the copper bath and a dynamo machine. We know of no other similar application of the electrotype process to the production of mechanical apparatus.—*British and Colonial Printer.*

Photographic Societies.

THE CHICAGO CAMERA CLUB.

The Chicago Camera Club held its annual meeting Tuesday evening, April 14th, in its rooms at 182 Wabash Avenue. The officers elected for the ensuing year are as follows: President—Fred. K. Morrill; First Vice-President—W. H. Shuey; Second Vice-President—Mrs. Jas W. Scott; Secretary—Jno. W. Buehler; Librarian—Miss Josephine B. Putnam; Directors—W. B. E. Shufeldt, Thos. W. Patterson, Dr. C. F. Matteson, J. B. McCleery, Mrs. Frank Douglass.

Rev. M. L. Williston thanked the club for the honor conferred upon him in being elected President for two successive terms, and spoke of the prosperity of the organization, assuring the members of a bright future if the same interest is kept alive that has been present in the past. Mr. E. Burton Holmes' lecture on his personal travels, illustrated by lantern slides, was very interesting. Mr. Holmes is a young man with pleasant address, an easy flow of language, and plenty of wit.

SECRETARY'S AND TREASURER'S REPORT OF THE CHICAGO CAMERA CLUB.

Chicago, April 14th, 1891.

To the Officers and Members
of the Chicago Camera Club.

I have the honor to submit herewith a report of the standing and financial condition of the Chicago Camera Club. The treasurer of the club being abroad, I have combined the reports of Secretary and Treasurer as one.

The organization was completed in May, 1889, and the club started with about 30 active members. We were fortunate in securing our present very desirable quarters; and as new members were added and the club's treasury became filled, we were enabled to stock the rooms with desirable and useful apparatus and accessories, which, in addition to numerous gifts in this line, have given us a very complete outfit.

Our increase in membership has not been rapid, but gradual, and there has been a slow but sure evolution in the way of weeding out the few inactive and uninterested members which we possessed at the start. Our membership at present is up to the average in numbers, and far above the average socially, as compared with the usual standard of club organizations. The many lady members of the club, and the fact that we have ladies among our officials, has been widely commented upon, and has done the club much good. During the past year we have admitted 35 new members, and lost 21 by resignation and 4 by death, and 11 have been expelled for non-payment of dues, making a loss of 1 member.

Our meetings have generally been successful and well attended. Our first and only public entertainment at Central Music Hall was a great success, both in a social and artistic way, and helped to swell the surplus in our treasury. Though our meetings are generally crowded, it has been demonstrated that lantern slide and other entertainments are much more popular than business meetings and discussions, so the Executive Committee have acted accordingly. We have plenty of room, however, for new members, and with the increased financial resources that twenty-five or fifty new members would add, we could do many things that we have heretofore been hampered in attempting. So let the old members go to work and each make a resolution to bring in a new one.

The Executive Committee feel proud of the financial condition of the club. We have recently closed a new lease of our present premises for three years, which will safely tide us over the World's Fair. This lease is on such satisfactory terms that we do not doubt it could be disposed of at once at a substantial bonus. We have no debts unpaid, and have always had a good amount to our credit in the bank. We have had no assessments, and have asked for no contributions, and we have never increased our dues. We have never bought anything or made any improvement until we had the money in hand to do it. In fact, this club has been run on sound business principles—which is an unusual thing among clubs.

The following is a summary of the Treasurer's accounts up to April first of this year.

THE CHICAGO CAMERA CLUB STATEMENT, APRIL 1, 1891.

Receipts and Expenditures from May, 1889, to April 1, 1891.

Dr.		Cr.	
Rents	$1,020 00	Memberships	$1,440 00
Salaries	446 66	Dues	2,623 50
Improvements	205 39	Entertainment at Music Hall	137 80
Furniture and Fixtures	1,205 65	Other sources	13 55
Chemicals, etc.	155 34		
Expenses (including printing, postage, insurance, coal, repairs, subscriptions, elevator service, gas, etc.	852 25		
Cash in bank	329 56		
	$4,214 85		$4,214 85

The items of furniture and fixtures, improvements and cash, amount, as you will see, to over $1,700. The club has 113 active members in good standing, 7 associate and 9 honorary. Nearly all of the apparatus was bought at manufacturers' cost prices, and is now as good as new. Therefore, it appears to me that even at a forced sale of the assets of the club, each regular member could receive

a dividend in excess of what he paid for his membership fee, not to mention the value of the lease. So, any member resigning, or giving up his membership in the club, relinquishes a tangible asset.

Thanking the members for their kindly aid and many evidences of approval in the administration of the club's affairs.

I am, respectfully,

Fred. K. Morrill,
Secretary.

THE MAY EXHIBITION.

The agreement heretofore existing between the New York, Philadelphia and Boston Societies to hold annual exhibitions under joint rules and a joint management, was canceled in October, 1890, and a new agreement adopted whereby exhibitions are to be held in rotation annually in the respective cities, but under the *exclusive management of the local society*, and under such regulations and rules as it may adopt. Medals or diplomas will be issued in the name of the society holding the exhibition.

The Board of Directors of the Society of Amateur Photographers, in October, 1890, appointed a special Committee of Arrangements, to select judges and manage the exhibition to be held in New York, May 25th to June 6th, 1891, inclusive (see page 137, March 20th issue), and also adopted the following conditions and rules for the exhibition:

CONDITIONS.

1. Medals shall be awarded by a Board of Judges, consisting of three persons chosen by the Committee of Arrangements with special reference to their knowledge of *Artistic*, *Technical*, and *Scientific* photography. No other awards of any kind shall be made.

2. Medals shall be awarded *only* "for Artistic, Technical, or Scientific excellence." In making their selections the judges shall give due recognition to work in any of the various branches or processes of photography which may show unusual merit. The aid of experts may be called in when special information is necessary.

3. The entire number of awards is left to the discretion of the Board of Judges, dependent upon the amount of work of high merit exhibited, but shall not exceed twenty-five. Three of these shall be for excellence, one in each of the following classes:

a. Lantern Slides (set of six, negative and positive, by exhibitor).

b. Applied Photography—Scientific or Technical.

c. Photographic apparatus.

Awards may be made for an entire exhibit, or for any part thereof. The judges may specially designate any particular picture for which a medal is given.

4. All photographers are at liberty to compete, but the judges are instructed to give preference, other things being equal, to work done entirely by the exhibitor.

5. The members of the Board of Judges shall not compete for awards, nor be connected in any way with the management of the Exhibition.

6. The decision of the Board of Judges shall be final.

RULES.

1. No picture which has once been exhibited in competition at a previous annual exhibition held under the auspices of the New York Society shall be again admitted for competition.

2. No picture will be received "for exhibition only," unless by special consent of the Committee of Arrangements.

3. No pictures which have taken prizes elsewhere shall be so designated until after the awards have been announced.

4. All pictures must be framed (with or without glass, at the option of the exhibitor). Pictures from *foreign exhibitors* should be sent by *mail*, *unmounted*. They will be mounted for exhibition by the Committee of Arrangements, free of charge.

5. The Committee of Arrangements shall have the right to reject the whole or portions of any exhibit offered; and if, in order to fairly apportion the space at their disposal among the various exhibitors, it becomes desirable to leave any pictures unhung, the rejections shall be made at the option of the Committee.

6. Entries of all exhibits must be made *in duplicate*, on blanks issued by the Committee of Arrangements, giving, for catalogue purposes, etc., information on the following points:

Number and size of frames.
Amount of wall space required.
Total number of pictures.
Subject or title of each. Lens and plate used for negative.
If for sale.
Price.
Name, address, and society of exhibitor.

7. The exhibitor's name and address, also a number corresponding to the descriptive number upon the entry form, shall be clearly written on the labels provided, which shall be attached to the *back* of each frame.

When two or more prints are mounted in one frame, a designating letter shall be placed under the center of each print, and all letters so placed shall appear in the entry form opposite the title of their respective pictures. *Nothing else* may appear in *front* of frame except title of picture and exhibitor's name.

8. No picture may be withdrawn before the close of the Exhibition.

9. All pictures must be sent at owner's risk, prepaid, and delivered to the Committee of Arrangements at the place by them indicated, and return charges collected by carrier.

10. The Committee will not be responsible for any loss or damage that may occur to exhibits while in its charge, but will use all reasonable care to prevent such occurrence; and at the close of the Exhibition will repack each exhibit and ship as directed by the exhibitor.

11. Advertising in any form in connection with an exhibit is strictly prohibited.

12. A charge shall be made for wall space at the rate of 25 cents per square foot (the minimum charge being $1)

to all except members of the Photographic Society of Philadelphia, Boston Camera Club and The Society of Amateur Photographers of New York.

The amount of charge for wall space must be enclosed with entry form to the Committee of Arrangements.

If any of the pictures entered are not hung, a due proportion of the charges will be returned.

A commission of 10 per cent. on all sales will be retained.

13. Models of photographic apparatus must have a removable card attached, containing the name of the exhibitor and the number to which it refers on the *entry form*. The exhibitor should also fasten a small adhesive printed label to the exhibit, containing his name only. Each exhibitor is required to write on the entry form, supplied by the Society, a concise description of each piece of apparatus.

14. A charge of three ($3) dollars will be made for each piece of apparatus entered by members of the Photographic Society of Philadelphia, the Boston Camera Club and The Society of Amateur Photographers of New York; non-members will pay five ($5) dollars, which in all cases must be enclosed with the entry form, otherwise the apparatus will not be received.

15. Apparatus and appliances that have been shown at any previous exhibition, or those that do not embrace some points of special interest (to be mentioned by the exhibitor on the entry form) may be refused.

16. Lantern slides must not exceed 3¼ inches high, and the diagonal line of the mat opening must not exceed 3¾ inches in length. It is suggested that the title label be placed at the right-hand end, and a thumb label on the lower left-hand corner of the cover glass, as the picture is viewed in its natural position.

17. Lantern slides will only be eligible for competition and award when both the negatives and slides are the work of the exhibitor. Not less than six should be sent by any one exhibitor for competition. A list of the slides and particulars as to the process employed should be stated on the entry form.

SUGGESTIONS.

Lantern Slides.—Special endeavors will be made by the Committee of Arrangements for the competition and exhibition of slides by the oxyhydrogen lantern four times during each week of the exhibition. Optical lanterns operated with gas or electric light will be admitted for competition under the head of apparatus, and the exhibitors will be allowed to show their working during the exhibition by and with the consent of the Committee of Arrangements.

Negatives.—Negatives and transparencies may be entered for exhibition, and should be suitably framed.

Photo-Mechanical Prints and photographs colored by scientific or mechanical means will be admitted for exhibition but not for competition, and should be limited in quantity.

Special Processes.—Any applicant submitting illustrations or specimens for exhibition, made by a special process, will be requested to furnish a description and particulars concerning the same.

Entry Forms.—Blank entry forms and blank labels to be placed on the back of frames will be furnished on application. See Rules 4, 6, 7, 12 and 14.

RECEPTION OF EXHIBITS.

All exhibits (including pictures, negatives, transparencies, lantern slides, apparatus and appliances, etc.), must be delivered (carriage prepaid) on or before May 11, 1891, addressed to

Committee of Arrangements,
366 Fifth Avenue, New York.

CORRESPONDENCE.

All correspondence respecting the Exhibition, blank entry forms and frame labels should be addressed to

Chairman Committee of Arrangements,
113 West 38th Street, New York.

NEW YORK, February, 1891.

The Editorial Table.

The American Dictionary of Printing and Book Making. New York: Howard, Lockwood & Co.

We have received Part I of the American Dictionary of Printing and Book Making, and with it the April issue of the American Book Maker. The Dictionary can be obtained only by subscribers to the latter publication, but it is then received without charge. The work is being brought out at great expense. The publishers expect to be able to complete the Dictionary within three years. To parties who prefer to remit $6 in advance for three years' subscription to the American Book Maker, the publishers will guarantee to deliver the parts of the Dictionary complete without extra charge, regardless of the size of the work or the time occupied in its publication. Howard, Lockwood & Co. are the publishers, at 126–128 Duane Street, New York City.

A Christian Woman, by Mme. Emilia Pardo Bazan. New York: The Cassell Publishing Co.

Mr. W. D. Howells, who has done so much toward calling public attention to modern Spanish literature, speaks with particular enthusiasm in the "Editor's Study" of a recent number of *Harper's*, of Mme. Emilia Pardo Bazan, whose power and directness of style he compares, as other critics have also done, to that of George Eliot. Mr. Howells expresses surprise that Mme. Bazan's stories have not been put into English. It is surprising that this has not been done before, but the reproach no longer holds good. It is with no little pleasure that the Cassell Publishing Company announce that they have just completed arrangements with Mme. Bazan by which they become the authorized publishers of her books in English. Cassell's Blue Library is inaugurated with a story by Mme. Bazan, called "A Christian Woman," which has an introduction by Mr. Rollo Ogden, who, it is superfluous to say, is thoroughly versed in the literature of Spain.

The book has for a frontispiece a portrait of the Doña Bazan, and is a beautifully printed and bound volume. It is translated by Mary Springer. Price, $1.00

Mr. A. R. Frank has sent us a kallitype print far above the average merit, and of a subject which is very interesting.

From Dr. George L. Sinclair, Assistant Superintendent of the Nova Scotia Hospital for Insane at Halifax, N. S., we have received two interesting snow scenes, both taken on the same day, as Dr. Sinclair writes, and nearly at the same time.

Platinotypes.—A number of exceedingly fine platinotypes have come to us from A. R. Dresser, of England, for the most part instantaneous studies, which have received the very highest awards in English exhibitions. A specimen or two will probably be shown our readers either in this magazine or in the forthcoming volume of "The American Annual of Photography."

"Photographische Mittheilungen," No. 1 of Volume XXVIII, appears in a much enlarged and improved form. It is illustrated by a photogravure portrait study and three artotypes, one of them from an orthochromatic negative. We congratulate our German contemporary on its improved appearance, and hope that this improvement will extend in other directions as well.

TO MY PLATE.

WITH fond hopes I exposed thee
To the sunlight's softened ray,
On the sweetest bit of nature
To be seen of a springtide day.

What matter if that "nature"
Were landscape, seascape, or yet
A group—or perhaps, a maiden,
The sweetest you could have met?

What matter why I am thrilling
As I flood your developer on
And watch for high-lights beginning
To peep from your blank face wan.

Ah, up at last they are coming—
Sweet lips and nose and eyes!
But what in thunder 's this other thing
That criss-cross everything lies?

O blank the whole thing to blankness,
And me for my stupidness!
I've gone and taken our old red cow
On the self-same plate, I guess!

Frank Daral.

Record of Photographic Patents.

450,214. Camera. Thomas H. Blair, Boston, and John H. Crowell, Vineyard Haven, Mass.

450,447. Device for lifting photographic negatives. Calvin H. Buchwalter, Philadelphia, Pa.

450,475. Photographic Cabinet. Charles Quartley, Baltimore, Md.

Queries and Answers.

58 A PHOTO-MECHANICAL STUDENT writes: "I beg of your kindness to answer as plainly and clear as possible, through the columns of the weekly PHOTOGRAPHIC TIMES, the following queries: 1. In photo-mechanical processes what is called an 'autotype' negative? 2. What is the best manner to produce it? 3. How is a net negative made, suitable for reproductions in half tone, by the zinc etching process? 4. Can a net negative be taken direct from nature? How? 5. I understand that for net negatives, a line plate and a sensitive plate (wet) must *be in perfect contact.* Is not such contact injurious to the line plate in consequence of the silver dropping from the wet plate? 6. If contact is necessary between the line plate and the wet plate, how can I arrive at it when the line plate is a great deal larger than the wet plate in use?

58 *Answer.*—1. An autotype is a photo-engraving in half tone. 2. By the wet collodion process. The negative is to be intensified with bromide of copper or mercury, and printed on an asphaltum or bichromatized albumen film. In Dr. E. L. Wilson's book on "Photo-Engraving" this process is minutely described. 3. Follow the formula given in the above book. 4. Certainly. We answer the question by another question: How do you suppose negatives from natural objects were made before the dry gelatine emulsion plates were introduced? We only had the collodion plate. It has done excellent service then as it does now. To interpose a screen of lines or cross hatches by direct photographing has been repeatedly tried with but insufficient success. 5. The contact between line plate and sensitive surface is not absolutely perfect. The American Optical Company makes plate holders for this purpose to order. 6. American photo-engravers reproduce from one large original line plate others of dimensions to suit particular purposes. The line plate must be turned during exposure. For three-fifths of the time the lines are placed in one direction across the sensitive plate. Exposure is then interrupted, the line plate turned in opposite direction, and the rest of exposure given. Hatchwork or cross line plates are occasionally used very successfully. For time preparation, see page 188, "American Annual of Photography" for 1891.

59 H. C. D. writes: "Where can I find an article, 'Flash-light Photography?'"

59 *Answer.*—The first reports on magnesium flash-light photography you will find in PHOTOGRAPHIC TIMES, Vol. XVIII, 1888. See pages 14, 16, 43, 45, 49, 50, 52, 55, 56, 81, 93, 95, 116, 125, 128, 152, 179, 204, 207, 244, 362, 519, 554. Additional information is given in Vol. XIX on pages 265, 290, 312, 346, 557, and in Vol. XX, on pages 18, 55, 65, 75, 134, 146, 227, 286, 608. "American Annual of Photography" for 1890 has an interesting article on the subject on page 231, and in the same work for 1891 several on pages 135, 207, 244. "The Photographic Instructor," second edition, devotes a whole chapter to photographing with artificial light. See Lesson XVIII, page 167.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

W I. LINCOLN ADAMS, Editor.

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WITH THE BEGINNING OF THE NEW YEAR many photographers contemplate subscribing to a photographic magazine, and sometimes are in doubt as to which one they will choose.

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

"THIS can appropriately be termed the king of annuals. In size it leads them all, and the matter contained between its two covers is of inestimable value to all. The number sold is immense, and we do not wonder, for it is a remarkably cheap book, only 50 cents in paper covers. The new Cyclopedic Index to this king of annuals is a valuable little work, and greatly enhances the value of the 'Annual.' Price, 10 cents.'—*The St. Louis Photographer.*

PHOTOGRAPHY is occupying the attention of army and navy officers to a much greater extent of late than heretofore for coast surveys, explorations, harbor situations, etc. Actual representations are easily obtained by photographic negatives with the least possible inconvenience, and the old method of sketching is thus done away with. The cameras manufactured by the American Optical Company, the Scovill & Adams Company, 423 Broome Street, New York, proprietors, are preferred by the best professional and amateur photographers to those of any other make. This company manufacture and carry the largest assortment and variety of photographic materials of any concern in the world. Their business negotiations with the various departments of the Government are much more extensive than those of any other manufacturer in this line, and we unhesitatingly recommend this company, as well as the goods of their make, to the favorable consideration of would-be purchasers, professional or amateur.—*Army and Navy Register.*

Business Notices.

WANTED to exchange, Blair Lucidograph, 5 x 8, complete, for Kodak No. 2 or 3. Write.
CHAS. COLLINS, Bellevue, Ia.

FOR SALE OR EXCHANGE.—A first-class ground floor gallery, doing the leading business in a city of 15,000 inhabitants; equipped with Dallmeyer lenses for making al sizes of photographs direct. 17,000 paying negatives. Prices for cabinets, $4 per dozen. Or will exchange for gallery in Colorado. For further particulars address
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TO LET.—Rooms of an old established photograph gallery. Good central location. LOUIS T. WISS,
755 Broad Street, Newark, N. J.

BEFORE stocking up for the summer's work try the Chautauqua plate.
MONROE DRY PLATE WORKS, Jamestown, N. Y.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

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RETOUCHERS! Try "Pearl" Retouching Leads. 15 cents each.
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WANTED.—Artists in India ink and water colors. Good artists can obtain lucrative and permanent positions.
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THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

SPLENDID CHANCE FOR FIRST-CLASS ARTIST.—$1.000 cash can buy photographic gallery in the most flourishing condition. Actual business last year $15,000, although owner was absent six months on account of illness. Ill-health cause of sale.
Price of cabinets, $8. Lots of large work at high prices.
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BUCHANAN, BROMLEY & CO., Philadelphia.

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GEO. KIBBE, 13 & 15 E. Main St., Amsterdam, N. Y.

WISSAHICKON SENSITIZED MAT PAPER.—Mat surface paper does not render fine details and delicate shading as sharply and clearly as albumen paper. But its weakness is its strength. For it tells the story of the picture more directly by not emphasizing unimportant details. When the charm of the picture lies in bold masses of light and shade, and requires a soft, broad treatment, our mat paper is in its glory. But even for delicate and intricate landscapes it has a beauty all its own. It is printed, toned and fixed like albumen paper. Readily gives tones from sepia to purple black. Brush and crayon take kindly to its surface. You can get it of Obrig Camera Company, 163 Broadway; W. C. Cullen, 61 William Street; A. G. Spalding & Bro., 241 Broadway, and Z. T. Benson, 2334 Third Avenue.
JOHN HAWORTH, Trade Agent.

CHAS. T. FELLOWS, Pres. F. A. GENTH, JR., Sec'y and Treas.
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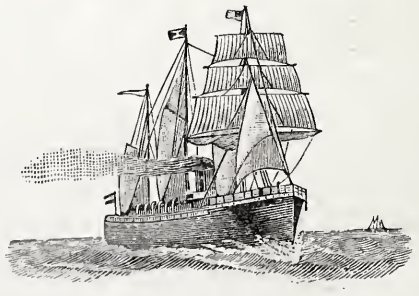
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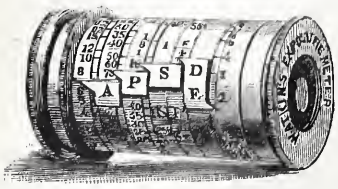


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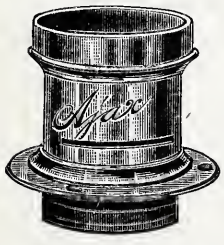
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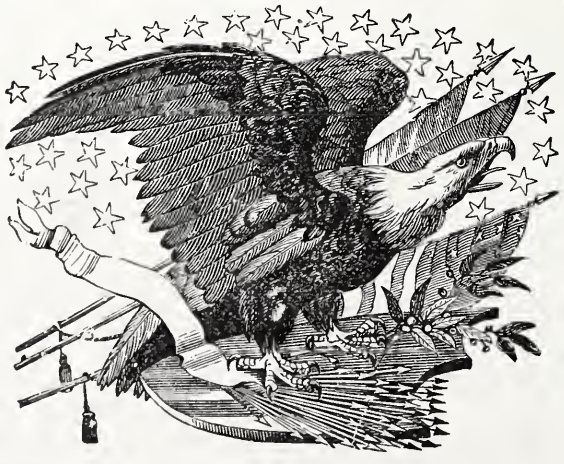
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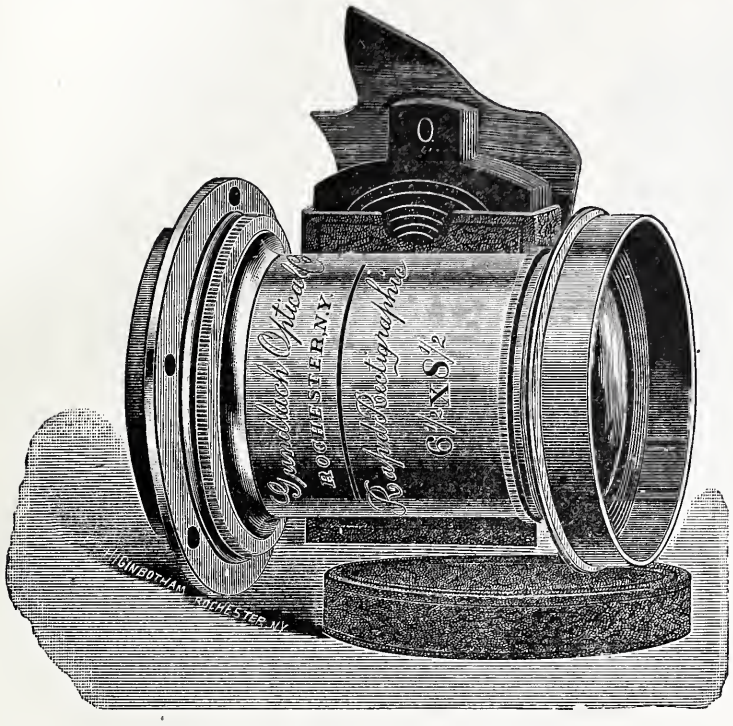
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III. "I Beg Pardon, Monsieur, but what is the Horse's Name?" (Photogravure.)
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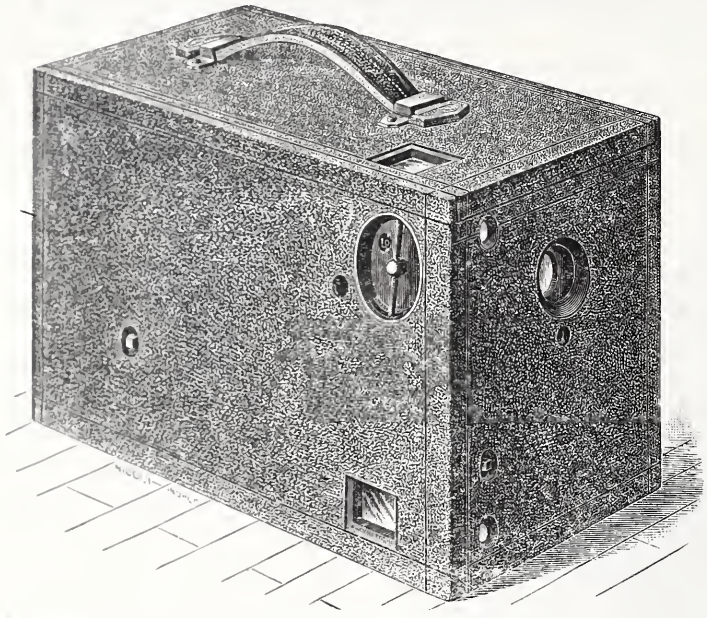
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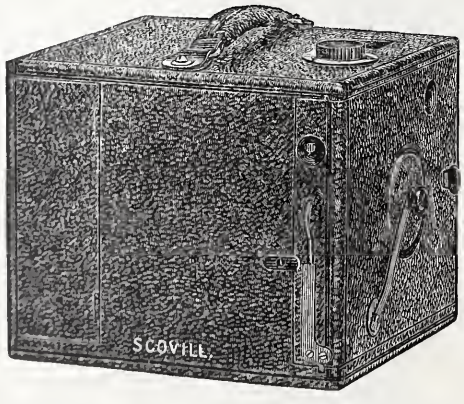
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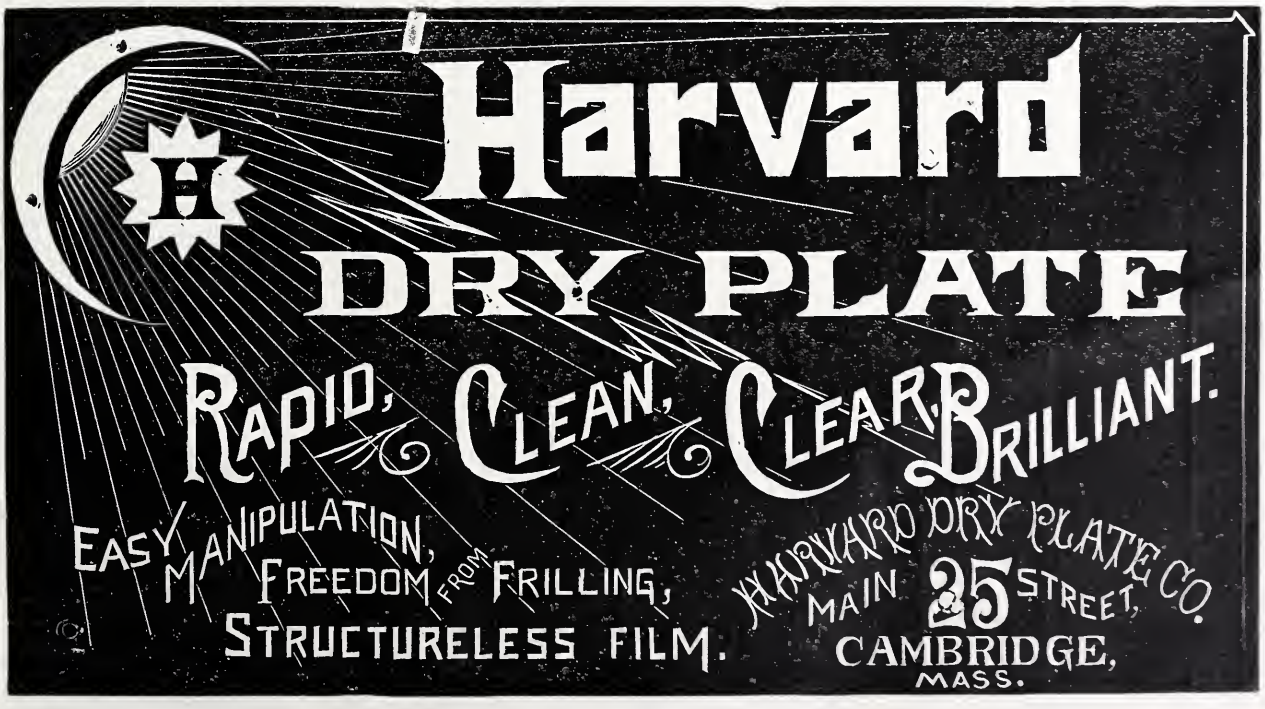
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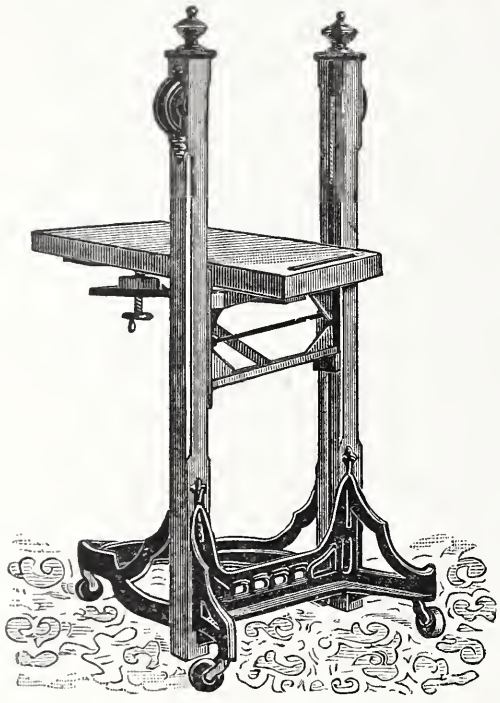
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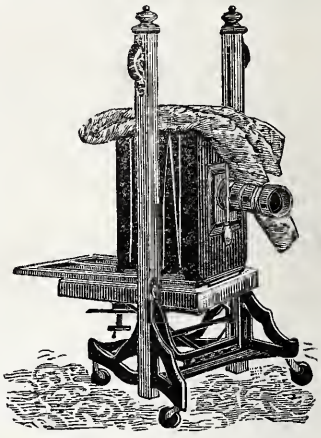
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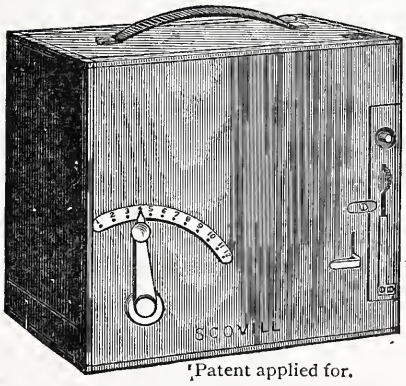
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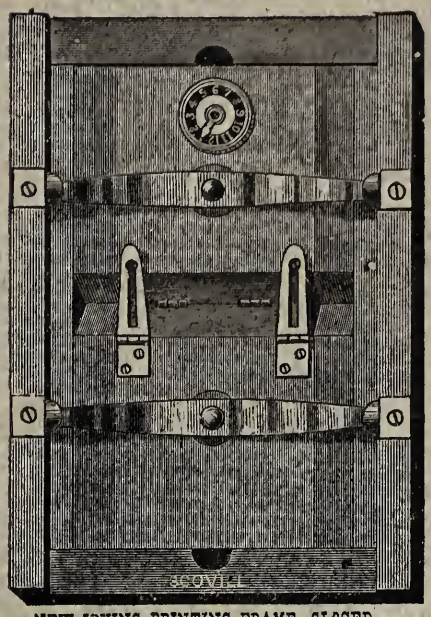
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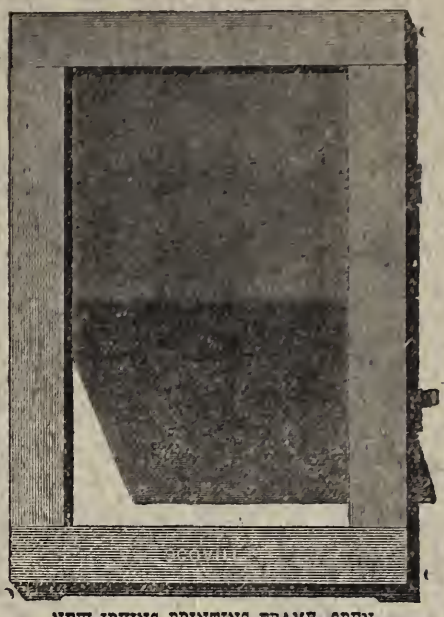
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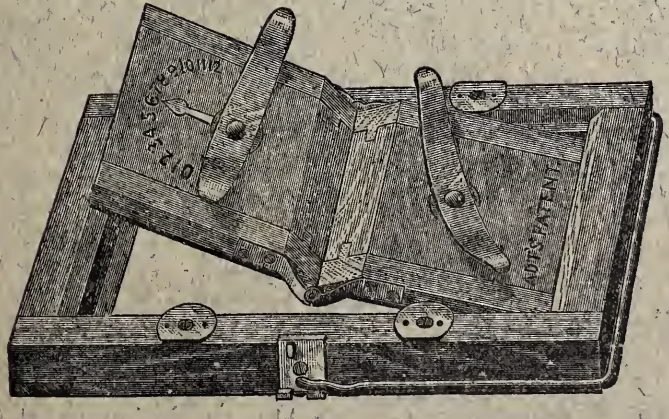
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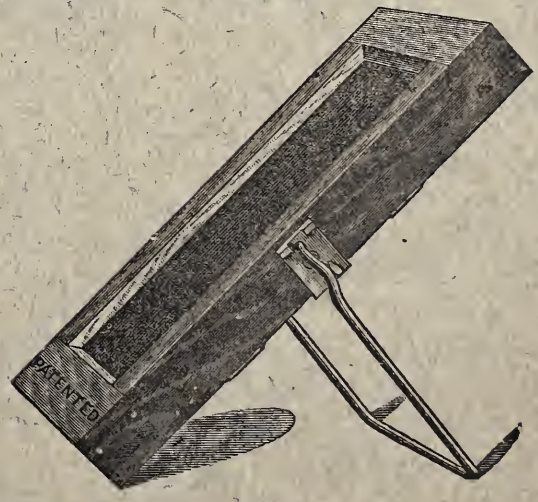
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MARK TWAIN'S KITTENS

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, MAY 1, 1891. No 502.

MARK TWAIN'S KITTENS.

WE present our readers this week with a picture somewhat out of the usual order of photographs. It is a group of kittens belonging to America's most popular humorist, Mr. Samuel W. Clemons, better known as "Mark Twain." Mr. Clemons spends every summer—his working season—at Elmira, N. Y., and it is here that his pet kittens were photographed in his study. Mr. Charles Van Aken, of Elmira, was the successful photographer, and he has another picture of the same kittens, "Fast Asleep," which is just as successful as this, "Wide Awake."

A WORD FOR THE ALBUMEN PROCESS.

WE recently witnessed an exhibition of lantern slides which had been made on albumen films in accordance with the old well-known process. We were struck with the surpassing technical qualities of these slides. In transparency they rivaled the plates made by the old collodion process, and in detail and sharpness they were even superior to slides made by that method. A variety of tone was obtained by modifications in the developer and by subsequent treatment. Altogether the excellence of these plates excited our wonder that they had been virtually discarded for so long a time.

The albumen process has been more or less employed in France, and some professional photographers in America and one amateur maker of microphotographs has clung to the albumen films on account of its ability to produce the finest details; but there have been at most but two American manufacturers who have made lantern slides upon albumen plates.

When we inquire into the reasons why such an excellent process has been cast aside, we can assign as the only probable cause, the indomitable and everlasting clamor for novelties in photography. Thus it was that the beautiful, the daguerreotype, made room for the tintype. Well-tried and thoroughly efficient developing agents had to succumb to a variety of organic compounds, and the orthodox albumen paper stands now in danger of being displaced by other printing processes, too costly in some instances for ordinary practice, and in others presenting a variety of difficulties.

Although we have always taken the most progressive stand in photography, and have invariably and with much enthusiasm advocated progress and have always advised experimenting with novelties, a line should be drawn between that which we know is positively good and that of which we know but little. In ante-collodion times magnificent negatives and diapositives were made in America and elsewhere on albumen plates, but they were pushed aside by Archer's newer process, and our first collodion negatives were but sorry apologies for those formerly made.

Had we persisted in working out the good qualities of the former as we did those of the wet collodion plate, and had we bestowed the same energy and diligence to the one as we did to the other, there is hardly a doubt that the albumen plate, and especially Whipple's modification with honey, might have been brought to great perfection. But collodion was the newest thing in photography, and the albumen plate died a slow but sure death. Of old photographers there are but few left who mourn the loss of the albumen plate. There was one point in favor of collodion, its much greater sensitiveness, though a perfected albumen plate equaled it as a medium for reproducing line work or the making of pictures of inanimate objects.

The gelatine emulsion plate will never be capable of producing the absolute opacity and transparency required for photo-mechanical printing processes. The albumen plate is eminently fitted for this work. Its superior sharpness and detail, its absolute clearness when printed upon an asphaltum plate, will doubtless produce wonderful results.

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There is no reason why an albumen film cannot be made color sensitive. Think of the advantages an orthochromatic albumen plate could offer for the reproducing of paintings and fabrics.

It is a pity to see how modern authors have passed by the process without taking the least notice of it. In photo-micrography albumen plates might do eminent service, but neither Marktanner nor Pringle say a word for it, nor has the latter mentioned it in his work on lantern slides. Burbank is probably the only author who devotes a whole chapter to the process in his book entitled "The Photographic Negative."*

Old processes have been frequently revived. Mat surface printing on silver paper has come to the front again, and carbon printing seems to be popular once more. Who will devote his skill and energy to the resuscitating of the beautiful albumen process?

POSTAL PHOTOGRAPHIC CLUB.

THE February Album, which is just approaching the end of the route list, contains some fine specimens of the photographic art, although it may be doubted whether as a whole it reaches up to the level of some preceding members.

Among the more successful attempts at posing and grouping are the following: Miss Eddy's "After Dinner"—a countryman, in a homely furnished room, sits by the open window enjoying the weekly newspaper; Miss Clarkson's "Elaine," a pale, sorrowing face, that pines for Lancelot; Mr. Prentiss's "Grandmother's Bonnet" upon a bright, dimple-faced girl; Miss E. S. Needles' "Leonard" displays well the happy, still unconscious mind of childhood; Mr. Briggs' "A Quiet Game," indulged in by Indian boys; Mr. Chase's "Two Boston Artists and their Model" is most audacious. A complete, articulated skeleton sits in the lap of one of the artists, the resemblance of whose face to the man of bone is too striking to pass unnoticed.

Among the landscapes we notice: "An Autumn Scene," by Miss C. J. Needles; Miss Gillender's "Hayfield;" Mr. Spaulding's "Approaching Storm;" Mrs. Appleton's "In the Lane"—the original of the picture issued recently in the *Amateur Photographer*; Dr. Strout's "Winter Landscape," a picture of rare merit; Mr. Le Breton's "Mountain Cascade;" Dr. Müller's "On the Brandywine;" "Camping Scene," by J. M. Walmsley; Mr. Pulsford's "Glimpse from the Roadside."

Excellent street views are: Dr. Sharp's "Union Street, Nantucket;" Mr. Smith's "Street in St. Augustine."

Mr. Graves has a fine photograph of a statue, "Youth as a Butterfly;" Mr. W. H. Walmsley shows skill with the microscope in the "Tongue of the Drone Fly."

There are some noticeable architectural pieces: Miss Biddle's "Mormon Tabernacle;" Mr. Martin's "Blithelea;" Mr. Dulk's "American River;" Mr. Philips' "An Old Mill;" Miss Johnston presents beautiful views of mantelpieces in the residences of Vice-President Morton and Mr. Wanamaker.

Altogether the album richly repays a few hours' study. Each member is permitted to retain it three days. Platinum and bromide paper are still the favorites in this club.

* No. 25 of the Scovill Photographic Series.

THE TONING OF PHOTOGRAPHS CONSIDERED CHEMICALLY, HISTORICALLY, AND GENERALLY.

CHAPTER IV.

ALKALINE TONING WITH CARBONATES AND WITH BORAX.

Alkaline Toning with Chloride of Gold Originated by Waterhouse in 1855.—In the early days of photography—thirty or forty years ago—the Photographic Society of London did good service in appointing several committees to consider such questions as the causes of fading of prints, etc. One of the most active members of that day was Mr. T. F. Hardwich, and the first indication which we get of the use of an *alkaline* toning bath is contained in a short paper "On Gold Toning Applied to Albumenized Paper," published in the *Photographic Journal* for December 11, 1858 (p. 95). In this paper Hardwich refers to "the labors of the printing committee appointed by your society." It had been said that these labors "issued in nothing, and that they found all their pictures to fade." He then protests against this statement, remarking:

"I have in my hand cards on which the prints experimented on by the printing committee are mounted; and these cards show that although many pictures have not proved permanent, yet that others, printed in a different way, have stood severe tests.

"In examining these cards, we may take, for instance, the proofs toned by sel d'or, contributed by Mr. Shadbolt. Three months' suspension in air saturated with water has made no impression on them, and although they have been mounted more than two years since that time, they are still unaltered.

"Or, again, let us examine the condition of certain prints sent to the committee by Mr. Waterhouse, of Halifax. I have mounted one of them to show you that no

perceptible difference can be made out between the two halves, although one has been subjected to the ordeal above mentioned.

"It is with reference to Mr. Waterhouse's process that I wish to address you this evening; and since it appears likely to become very popular, it may not be without interest if I describe briefly how it originated. The prints were sent to the committee by Mr. Waterhouse with the following letter, as far as my memory serves me: '*I salt the paper with a chloride dissolved in a solution of caseine, and tone the image with chloride of gold. But inasmuch as Le Gray's process eats into the picture, I modify it by using an* ALKALINE *instead of an acid solution of gold. The alkali I employ is the potassæ subcarb., and I add more or less of it according to the tint desired.*"

The "potassæ subcarb." of the druggist is our carbonate of potash.

The "printing committee" referred to by Hardwich in the paper from which the above remarks are quoted was appointed at the meeting of the Photographic Society of London on 3d May, 1855; and its "first" (and apparently only) report is printed in the *Photographic Journal* for 21st November, 1855. Mr. Waterhouse's prints, with his remarks as quoted by Hardwich, must therefore have been sent to that committee about the middle of the year 1855, and this is the period from which "alkaline" gold toning dates.

The Modern Carbonate of Potash Bath—The carbonate of potash bath gives lovely warm or sepia tones. It may be made up as follows:

Chloride of gold	1 grain
Carbonate of potash	15 grains
Distilled water	10 ounces

The bath should be made up an hour or so before using. It keeps fairly well. Dissolve the potash in the water, and add the gold last of all. The best temperature for the bath is 65 deg. Fahr

The Carbonate of Soda Bath—Hardwich, 1857.—In the fourth edition of his well-known "Manual of Photographic Chemistry," published in 1857, T. F. Hardwich makes the first mention in print of an alkaline gold toning bath. He writes (p. 132):

"M. Le Gray's toning process (using nothing but acid chloride of gold) is objectionable on account of the excessive over-printing required. This, however, is to a great extent obviated by a modification of the process in which an *alkaline* instead of an acid solution of the chloride is employed; 1 grain of chloride of gold is dissolved in about 6 ounces of water, to which are added 20 to 30 grains of the common carbonate of soda. The alkali moderates the violence of the action, so that the print, washed with water and immersed in the gold bath, is less reduced in intensity, and does not acquire the same *inky* blueness. On subsequent fixing in the hyposulphite, the tint changes from violet to a dark chocolate brown, which is permanent."

For the important idea of an *alkaline* gold toning bath, Hardwich was indebted to Mr. Waterhouse, of Halifax, the inventor of the generally used "Waterhouse diaphragms." This is clear from a statement contained in a paper by Hardwich in the *Photographic Journal* for 11th December, 1858 (p. 95). In this he states that Mr. Waterhouse sent to the "printing committee" a set of prints toned by an alkaline solution of gold; the alkali used being carbonate of potash. Hardwich then writes: "Finding that this process was more manageable than Le Gray's, and produced very permanent pictures, I was induced, in an edition of the 'Manual of Photographic Chemistry,'* which appeared about that time, to suggest a trial of it, having previously adjusted the proportions, and substituted carbonate of soda for carbonate of potash, as a salt more easily obtainable." It was unfortunate that no mention of Waterhouse's name was made in the fourth edition of Hardwich's book in 1857, but the omission was certainly not intentional, for the author was one of the most open and honorable of men.

The Modern Carbonate of Soda Toning Bath.

Chloride of gold	1 grain
Carbonade of soda (sal soda)	12 grains
Distilled water	10 ounces

The solution should be made up half an hour before it is to be used. With strong, intense negatives, possessing numerous gradations, this bath gives a rich purple-black tone.

The Borax Toning Bath.—Writing of the phosphate of soda bath in 1859,† Mr. Maxwell Lyte remarks: "180 grains of borax may be substituted for phosphate of soda with a like result." A borax bath containing a little common salt is also described by Mr. John Heywood, in the *British Journal of Photography* for the same year (p. 282).

The Modern Borax Bath.

Borax	60 grains
Chloride of gold	1 grain
Distilled water	8 ounces

Warm the water to about 100 deg. Fahr., dissolve the powdered borax in it, and then add the gold. Allow to cool to 70 deg. Fahr. before using.

The borax bath is ready for use immediately it is made up; but it does not keep well, and it is preferable to only make up as much solution as will tone the prints in hand. It seems to agree specially well with the ready-sensitized papers now so largely used.

Brooks's Borax Bath.—Wash the prints well in plain water.

* The fourth edition, 1857; see p. 132.

† *Photographic News*, p. 301.

Dissolve 90 grains of powdered borax in 15 ounces of hot water. When cooled down to, say, 75 deg. Fahr., add 1 grain of chloride of gold and shake well. This ought to tone one sheet of paper. Keep the prints moving. The borax solution must be *freshly made;* a stock solution of borax does not answer nearly so well.*

Chemical Changes in the Borax Bath.—It is not easy to follow positively the chemical changes which accompany the toning of a silver print in the "borax bath," but the following equation represents what probably takes place:

$$3Na_2B_4O_7 + 18H_2O + 2AuCl_3 = 12H_3BO_3 + NaClO_3 + 5NaCl + 2Au.$$

Borax *and* water *and* gold chloride *produce* boric acid *and* sodium chlorate *and* sodium chloride *and* gold.

The sodium chlorate, which is one of the substances produced during the above reaction, attacks the silver sub chloride (the "reduction product" produced by the action of light on silver chloride) and weakens the print somewhat. Hence the necessity of over-printing to some extent when the borax bath is to be used.

Burnett adds Common Salt to the Alkaline Toning Bath (1859).—Mr. C. J. Burnett contributed to the *British Journal of Photography* for 1859 (vol. vi., p. 175), a formula for a carbonate of soda gild-toning bath, to which he recommended the addition of "common salt, 5 to 10 grains per ounce." The reason of this he stated to be that "chloride of sodium (common salt) prevents precipitation of gold even when kept long." The addition of a little salt has since been recommended in the formulas of several workers, and doubtless with the same ideas in view—that it makes the bath keep better. Its action in this direction is doubtless due to the affinity of sodium chloride for the sodium chloroaurate which constitutes the active ingredient of most toning baths.

W. Jerome Harrison.

(*To be continued.*)

A SUGGESTION FOR A POSSIBLE METHOD OF IDENTIFYING THE COLORS PHOTOGRAPHED.

(Read before the Photographic Society of Philadelphia.)

THE production of orthochromatic or color-stained plates, which will yield negatives or prints giving approximately true color values, is at present one of the most active problems of the photographic world, attracting the attention of specialists and active researchers in almost every country.

These color-sensitive plates, by reason of improvements made in the dyes used, thus insuring their stability or keeping qualities, in addition of increasing their sensitiveness to shades of color, together with the reduction in the price of manufacture, has of late increased their popularity with the professional as well as the amateur photographer, so that where but a short time ago they were only used by experimentalists, and by a few professionals for copying art paintings and like subjects, they are now coming into general use in all branches of photography, from studio portraiture down to the snapshot of the hand camerist.

Ever since the orthochromatic principle was first broached, the hope was fostered that by some means, in addition to giving true color values, it would become possible to find a method to distinguish or identify by the print the colors in the original. This problem has for a long time remained a matter of conjecture and research, engaging the attention of the best known photographic students and theorists at home and abroad, as is instanced by the experiments with the solar spectrum and shades of color—thus far, however, without leading to any practical method by which the colors in the original might be identified at sight.

In connection with this subject, I wish to bring to your notice a suggestion for a simple method by which this much-desired object may be obtained, at least under certain conditions in suitable subjects, as you will see by the results shown by the negatives and prints as well as on the screen.

The experiment may be considered a partial solution of the problem, at least within the scope of the subjects and colors upon which I was able to experiment. The subjects were entomological and ornithological (butterflies and birds), and were selected with reference to the brilliancy of the colors and the difficulty which they have heretofore presented to the photographer.

The suggestion, as you will perceive, is simply to photograph a color key along with the subject, which shall explain itself.

Of course I do not for a moment wish to claim that this method will work in every case and subject, or where there is a marked admixture of white or black with the respective colors; but under stated conditions, for such subjects as indicated, as well as other departments of natural history, where the colors of the insects, animals, or flowers are bright and decided, I do claim that with suitable orthochromatized plates, and where the requisite care is taken to prepare the color key, and to insure correct exposure and development, the suggestion, simple as it is, will be found to work

* This agrees with my own experience.—W. J. H.

satisfactorily, and that the colors of the original can be distinguished or recognized in the print in every case by the student who is able to judge, regardless of how much it might puzzle the general observer who is not at all familiar with the subjects.

I will now call your attention to the negatives and prints, and will state that they were made on the ordinary commercial plate, with a portable outfit, in the Academy of Natural Sciences of Philadelphia, with a poor side light, under very adverse conditions. The first picture (No. I), a print of eight butterflies, selected on account of their varied colors, which comprised lemon-yellow, brilliant blue, blood-red, orange, bright red and black. Care was taken that the specimens, with the color key, should all be upon the same plane, and to insure an equal illumination.

The color key was formed of a plain white card, upon which was fastened pieces of tissue paper matching in color the hues of the moths; two of the shades, the bright blue and the red orange, I unfortunately was not able to match exactly from the resources at my disposal as well as they might have been. However, crude as this experiment is, the result will prove the correctness of the principle as suggested. With the use of a color screen or light filterer much better results can be obtained, which I trust to show you at a future meeting. Still, you will perceive that the four colors can be easily identified in the subjects.

The plates used were the regular Carbutt orthochromatic, Sens. 23. The development was with the combined developer as per formula in *American Journal of Photography* (February 1891, p. 91). I will also state that plates of the same emulsion, but not orthochromatized, did not prove successful, as you will see by comparing the prints numbered I, VII, and VIII, respectively. The attempt to attain the results by pyro and soda developer also resulted unsatisfactorily, all things being equal.

In the next subject, the *Sittace macao*, or red-and-yellow maccaw—a very unpromising subject—you will see on the print from an orthochromatic plate the five colors, cream, blue, yellow, red, and green, are all plainly marked or discernable, while on the print from a plain plate there is but little distinction between the two first colors or the three latter ones.

One matter I overlooked in this experiment, viz.: In making a color key always to include black where it appears in the subject, as where bright, deep red and black appear close together, as in this subject, it would be hard to tell which was the red from the black, especially if strongly printed.

The question may be asked, Of what practical value or extended use is this color key? In reply I will state, first, from a scientific point of view, that any process of reproduction by which the natural colors can be deciphered, or even approximated, must prove of the greatest value. This is especially true in the department of entomology and ornithology. Further, the absolute truthfulness of the photographic processes is far in advance of the laborious and expensive hand productions which are now used in the study of scientific matters. In addition, our present illustrations too often carry with them the individuality or imagination of the artist, to the detriment of nature, notwithstanding the great care taken by scientists to obtain the pictures true to nature.

Then we have the great search power of the camera, with perhaps its greatest possibilities yet undeveloped, showing the structure of insect life with a fidelity to nature in its most minute parts unequaled by any other process, which is now supplemented by the simple process brought to your notice this evening, foreshadowing the possibility of distinguishing the various shades of color in the original.

From the commercial point of view, the above application cannot be overestimated, as you will see that by the aid of the color key and orthochromatized plate a negative can be obtained from which a half-tone (Ives) process block can be made, retaining the graduations of shade necessary to the identification of the shades of color in the original, thus opening a field for the production and illustration of scientific works on a scale heretofore impossible, while at the same time reducing the price and increasing the value, which cannot but help to popularize the study of the scientific subjects to which the process is applicable.

Julius F. Sachse.

A POSTING TRIP THROUGH NORWAY WITH A HAND CAMERA.

It was toward dusk, in the month of July, in the summer of 1890, that we landed from a small Norwegian steamboat at Laerdalsoren, the posting-station at the head of the magnificent Sogne-Fjord in Western Norway. Here the skydsgut, or post-boy, held supreme sway, and we fought our way with difficulty through the clamoring crowd collected on the pier. But to maintain long the spirit of independence was useless. The next sensation was one of surrender, the being hurried with all our luggage into several conveyances, joining the long procession and driving pell-mell into the town

a mile or so up the valley. The next point was to secure rooms. Even when engaged before arrival, one is never sure in Norway of one's own, until actually in possession. The two small hotels appeared to be full, judging from the crowds collected about their doors. However, appearances were false, and we were fortunate in finding comfortable rooms for the night. After a light supper, the entire evening was spent in engaging conveyances for our trip of two hundred and forty miles across Norway. After much discussion and bargaining, we decided, for our party of six, upon a diligence, which resembles an open barouche, with a removable iron frame supporting a canvas cover in case of rain, a stolkjaerre or gig, a two-wheeled wagon, carrying two persons, and a carriole, that most delightful of all Norwegian carriages, which is best described as resembling a huge spoon. It holds but one person, who sits in the bowl, with the feet in the handle. Behind is strapped the luggage, serving as a seat for the post-boy, who drives the pony or not, as is desired. We engaged the wagons for the whole trip across country, changing horses and post-boys at the stations. These are usually farm houses, occasionally small hotels, whose proprietors are obliged by government to supply the traveler with horses, and are from six to seven miles apart. The post-boy takes back the horses to the station from which they start immediately on dismissal from the next In the summer season, when Norway is crowded with tourists, the horses are on the road most of the time. It is hardly surprising that at times the poor little beasts are utterly worn out. But when the pony is fresh, one spins over the country in the most delightful fashion. The true Norwegian pony is of a light cream color, with a long tail, and shaggy mane falling over its eyes, in this regard much resembling the Shetland pony. They are very sure-footed, and are allowed a loose rein as they run up and down hill. The owners are very fond of their ponies and treat them most affectionately.

It was about eight o'clock the following morning that our caravan started, having planned to make the two hundred and forty miles in four days, though three are usually allowed. The bright sunny morning we hailed with delight, knowing full well the hopelessness of Norwegian rain. It was a good omen, for the perfect weather with which we started kept with us throughout the whole trip. I planned to bring up the rear of the procession, that I might have free play in the use of the camera, for Norwegian road-etiquette is very strict in regard to passing. This is never done except in cases of urgent need, and then always with an apology. Having experienced the inconvenience of this politeness, I preferred the independence of halting when I desired, without the embarrassment of stopping a long line of wagons behind, the post-boys politely bowing, but steadfastly refusing to take what they seemed to think a mean advantage.

At the start the road lay through a fertile valley, following at times the course of the Laerdal River. The men and women were in the fields hay-making, and as we came upon group after group it required some self-denial to be satisfied with one or two pictures. The manner of hay-making is curious. The hay is never left on the ground to dry, as with us, on account of the frequent rains and showers, for it is so thin and light it would soon rot. All along the narrow valleys and far up on the hill-sides one sees hedges of hay rising one behind the other. Poles are driven into the ground quite close together; from them are stretched cords, and the newly cut grass is placed by hand upon them so thickly that they appear as masses of green. By this means the wind blows through, and the hay is quickly dried.

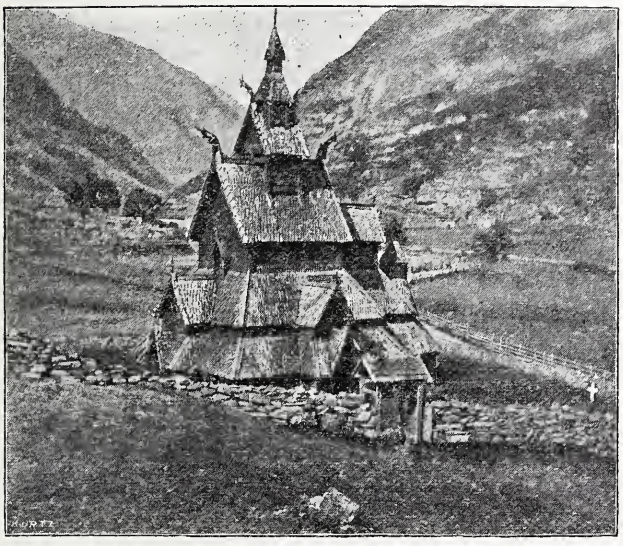


THE LITTLE SISTER.

At the first station where we changed horses a most tempting camera subject presented itself: a daughter of the house, holding in her arms the baby sister, and standing in a typical Norwegian court-yard—the barns and out-houses built around a square, the house forming one side. A little persuasion from the mother and the small models consented to pose a moment.

As we continued on our way the country became wilder, the road still following the course of the Laerdal River, winding in and out through a narrow

ravine. In places the road was cut from the solid rock, in others built along the edge and overhanging the roaring mountain torrent at our feet. A wonderful piece of engineering. Indeed one is constantly surprised at the superb roads met with throughout the length and breadth of Norway. They are as smooth and hard as park roads, and are kept in perfect order, regular government inspectors going over them constantly. The wonder arises from the contrast they present to the apparent poverty of the country.



The Old Church of Borgund.

At noon we halted for an hour at Husum station. Here we dined and met travelers coming from the opposite direction. One of the diversions of these stations is the chance for collecting bits of old Norwegian silver, buttons, brooches, etc. The landlady brings out the little hoard and we swarm about her like bees. In a few years Norway will be bereft of all her heirlooms. After leaving Husum we ascended the winding road through a narrow ravine, keeping an eager lookout for the ancient church of Borgund, which lies in a valley a short distance beyond Husum. Truly Norway has a just right to be proud of this treasure of antiquity, this curious relic of its early days of Christianity, standing now as it has stood for centuries past. It is built entirely of wood, black with age. We are told that it dates back to the eleventh century, at the time of the first dawn of Christianity in Scandinavia. Closely resembling a Chinese pagoda, both in form and the fantastic carvings with which it is adorned, one is inclined to the belief that those early Christians of Norway built their churches much as the Pagans of the land had built their heathen temples. Another point of resemblance is the smallness of the structure, the interior measuring but 20 by 40 feet, so much space is taken up by the over-hanging eaves. Not far off stands the belfry, seemingly of a later period. Continuing on our way the road still lay through the Laerdal valley, where one sees some of the finest scenery in Norway. But after leaving the station of Haeg we left this magnificent valley and commenced an ascent of some 2,000 feet before reaching Maristuen, where we spent our first night. It stands on the spot of an old-time hospice, founded by the clergy many centuries ago, and is situated on a plateau commanding distant views on all sides. On one of these, thousands of feet below the little hotel, roars the River Laerdal.

Elizabeth Almy Slade.

(*To be continued.*)

Correspondence.

PHOTOGRAPHING ELECTRIC SPARKS.

To the Editor of The Photographic Times.

Dear Sir: Speaking of photographs of lightning, I take opportunity to mention that I have made for some time electric-spark pictures, upon which those parallel lines, not yet explained, and which Dr. Kayser, of Berlin, had obtained with an ordinary camera, are well impressed. I make these spark pictures by means of a powerful influential machine, of such enormous energy, that even by moderate rotation of the plate, a continuous current of sparks is generated. They are, however, not made like ordinary photographs, but they are autographic pictures of the sparks, they themselves recording their existence upon the plate. The conditions necessary to produce them are indeed very simple, and success invariably certain. I at least have never had occasion to complain of failures; but whether smaller machines than that I operate with will prove equally successful is questionable. I generate the current of sparks with four pairs of glass plates, the diameters of the smaller being 62 cm. and the four large ones, though firmly fixed, of 72 cm.

The energy of action of this most powerful generator of electricity has astonished all visitors to my laboratory; the more so as its functions never vary, and are entirely independent of atmospheric conditions. Your countrymen, the Messrs. John A. Brasher, of Allegheny City, and Romyn Hitchcock, at present in Pekin, have seen my machine in action, have been astonished at it, and expressed their admiration in most laudatory terms.

Very truly yours,

Victor Schumann.

Leipzig, April 3d, 1891.

Notes and News.

T. C. Hepworth, formerly editor of the *Camera*, and subsequently on the staff of the *Amateur Photographer*, both of London, has now become proprietor and editor of the *Photographic News* of that city.

Photographer Fined.—John Koppelman, the photographer of Orchard Street and North Avenue, who took the obscene pictures confiscated by the Lake View police, was fined $75 by Justice Boggs, and Fred Meyer, his assistant, was fined $25.—*Chicago Times.*

The Boston Camera Club will hold its seventh public entertainment at Union Hall, 48 Boylston Street, Friday evening, May 8th. A descriptive lecture will be held by Mr. Charles H. Currier, illustrated with lantern slides from the Yosemite Valley.

A Sale Exhibition of photographs will be opened at the rooms of the Boston Camera Club, 50 Bromfield Street, on Tuesday, May 12, 1891. An attendant will be present daily from 10 A.M. to 5 P.M. to take orders. The entire proceeds will be for the benefit of the club. The exhibition will remain open for two weeks.

A Society of Photographers.—The first annual meeting of the Photographic Society of the Wagner Free Institute of Science, an association formed by a number of gentlemen in the northwestern part of Philadelphia, took place April 18th. The object of the society is the promotion of the interest in this art in connection with the Wagner Institute.

Among the Survivors of the "Utopia" disaster who arrived in New York a few days ago was William T. Colbron, a member of the New York Camera Club. He had been on a health-seeking trip along the shores of the Mediterranean, and had taken several hundred views, all of which were still undeveloped when the wreck occurred. They were all lost.

The California Camera Club gave a well-attended lantern exhibition at the Metroplitan Hall, San Francisco, Friday night, April 17th. "Glimpses of Ireland" was the subject of the lecture, and Dr. C. H. Steele was the lecturer. President Reed announced that it was the intention of the club to present similar lectures every month.

We have a Diagram of the dealers' and manufacturers' department of the Twelfth Annual Convention, with the rules and regulations governing the same, posted in a convenient place in our office, where it is at the disposal of any who may care to refer to it. Latest reports indicate that nearly if not quite all of the available space has been rented.

Sarony Sues Wilson Barrett.—Sarony, the photographer, has brought an action against Wilson Barrett. The plaintiff alleges that he made ten photographs for defendant, for which he did not receive pay, and now sues for $160. Mr. Barrett, in his answer, admits having received the pictures, but claims a contract was made by which Sarony was to furnish them free and make what he could out of copies retained by him; he further alleges that $160 is an outrageous price for the work.—*New York Press.*

The Photograph Did It.—NEWPORT, Ky., April 11.—Introduced only by photographs shown by a mutual friend a year ago, Miss Anna Coleman, a prominent Newport teacher, and Mr. John V. Nye, of Livingston, Mont., will be married at Minneapolis to-morrow. They have never seen each other.

The friend's advice led to a correspondence after the exchange of portraits, and Miss Coleman merely supposed Mr. Nye to be a well-to-do Western gentleman. Now, since a year of distant love has drawn the two so near to marriage, Miss Coleman has been shown documents proving Mr. Nye to be a millionaire copper miner.—*Philadelphia Record.*

Matrimony Photographed.—At a recent wedding in a Kansas church the group at the altar were photographed by an enterprising artist who pushed the button while the minister did the rest. To the thoughtless man this might seem something like sacrilege, but on second thought he will see that it is an excellent idea. Every man sees an angel in the woman he loves and most brides find perfection in their new-made husbands. If a picture of the scene that united their lives in one is kept hanging on the walls of their home, it might recall the old love and make them look with lenient eyes upon the shortcomings that each finds in the other.—*New York Mercury.*

The Death of Mr. Darius Goff, of Pawtucket, R. I., occurred Tuesday, April 14th, at the age of 82 years. Mr. Goff was a director of The Blair Camera Company, and its president from 1882 to 1885, when he resigned in favor of his son, D. L. Goff, who now fills that position. He was one of Rhode Island's most prominent and staunch business men, being president of several large corporations and a Director in several others, including banks, and a Republican of the old school. His sons maintain the same political faith, Lyman B. Goff, one of the two, receiving the Republican nomination for the Lieutenant-Governor of Rhode Island for the present year, but declining to serve, owing to his aversion to politics. Mr. Goff was one of T. H. Blair's financial supporters at the commencement of his enterprises, and his calm wisdom has done much to shape the policy of the Blair Camera Company. He will be greatly missed by his State, city, and many old and young friends, who had in him a kind and wise adviser.

A High Kicker's Photograph.—One of the photographs that has the largest sale just now is a portrait of a girl who is perhaps the highest kicker in the country. Her right leg is parallel with her body and that foot is a trifle higher than her head. It is said to be an inside fact about the picture that the fair subject had her heel trussed up in position and some one to hold her from falling over backward while she was being photographed. She can actually kick as high as you please, but kicking a hat and kicking to be photographed are vastly different things.—*New York Sun.*

The Twin Brothers.—To make this picture, place the subject in position on the right of the center of the black background, focus, and expose for two seconds in good light. Now place the subject on the left of the center of background and focus again, giving the same exposure. If you have left room enough between the two figures, you may now take a chair and place it in the center of the background and seat the subject in it, focus, and give again the same exposure. Develop the plate and you will have the two, or three, twin brothers. This line of pho-

tography offers a great scope for originality and skill, and I would be very glad to hear of an exhibition held for this kind of picture alone.—*Arthur Smedley Green in the Scientific American.*

Ghost or Shadow Pictures.—Make a background the required size by stretching out some black material. Place your subject—draped in white or light-colored clothing—in position to the right or left of the center of the background. Focus and expose for half a second, and the impression on the plate will be a shadowy, ghost-like figure. Next take a chair and a table, and place the chair in the center of the background and the table on the opposite side to the ghost. Seat the same subject in the chair at the table, focus again, and give full exposure, which, if the light is good, should be about two seconds. Develop and print in the usual way.

Any object that you wish to be seen through the shadowy figure must be subjected to a quarter of a minute's exposure before the figure is placed in position.

Photography and Truth.—Photography plays queer pranks with its subjects sometimes. A photograph often flashes out a family resemblance that had never been noticed in a face until then. A photograph has a way also of telling on people sometimes. The hidden cruelty or sensuality, or vanity, or deception, comes to light under the searching of the sun, however successfully the man's will or craft may conceal it ordinarily. A rascal is running a risk when he has his photograph taken. His friends may see what he is trying to hide. It was James who wrote that remarkable story, "The Liar." There was an artist who painted a portrait of the husband of the woman he had once loved himself. When the portrait was finished the husband and wife, and not only they, but all the world, saw on the canvas the face of a consummate liar. What the artist did on that occasion is what the sun often does. It tells the truth that the man has hidden so successfully.—*New York Evening Sun.*

A New Soldering Process.—M. Cailletet, whose name is celebrated in connection with the liquefaction of the "fixed gases," has lately communicated to the *Société de Physique* a process for soldering glass or porcelain to metals, which, as it may be of use in the construction of some photographic apparatus, we here note. He gives to the glass to be utilized for the purpose a thin coating of platinum in the first instance (or sometimes one of silver, the former metal being the best for the purpose). To do this he makes a mixture of neutral chloride of platinum and oil of chamomile, and lays it, by means of a brush of spun glass, upon the portion of the glass to be utilized, and then evaporates slowly until the white odorous vapors have disappeared. Next, the glass is heated to a dull redness, upon which the platinum becomes reduced to a brilliant metallic film; and upon this, when cold, it is easy to reduce, by electricity, a coating of copper, to which may be soldered another piece of glass, similarly treated, or any required metal. Soldering so performed resists the high pressures, upwards of three hundred atmospheres, employed in M. Cailletet's apparatus for gas compression.—*British Journal of Photography.*

Incidents in a Photographic Gallery.—One old gentleman often came to me to have his picture taken. He wore a white cravat about five inches in height, and he held his head above it. I always tried to get his head down, so as to obtain a view of his face without looking up his nostrils; but he never let me. As soon as I placed his head in a good position, he would say that that was not natural, and up would go his head. It was this gentleman who was told by a crazy woman on the Jersey ferry-boat that when he died it would not be much trouble to bury him, as he was already laid out.

A lady once brought her three children, a hobby-horse, a drum, and a doll. They were to be taken in a group. The size selected was three and one-fourth by four and one-half inches. The girl Angelina was to hold the doll; but the family had not decided whether Charles Augustus was to ride the horse and William Henry hold the drum, or *vice-versa*. They had agreed to let my superior judgment decide that momentous question. As both the boys wished to mount the horse, a decision was no easy matter. I then learned that the mother did not want the children close together, as all the "dog-ra-types" were taken. She wanted Angelina in the middle of the room, one of the boys by the "winder," and the other boy on the other side of the room. It was a brilliant idea; but how my camera was to reach them all, thus spread out, was more than I could see. I told her that it could not be done; I explained to her the capabilities of the lens, the concentration of the light, and so forth, but she did not understand me. She said that she had been told that I was disposed to be accommodating, but that I was just the same as the rest of the "dog-ra-type" men, for three others had refused to accommodate her in this way.

Another lady brought her three children to be taken in a group, and when I asked her if she wished them taken in any particular position, she showed her good sense by saying that she only asked that they should not look like three candles; she did not wish them all standing straight.

An old lady, after sitting about half the time required to have her picture taken, raised both hands and exclaimed, "Stop it! stop it! I winked!"

As an elegantly-dressed young lady was preparing to sit for her picture, she asked, "Where must I look?" and before I could answer, her escort, a very diminutive specimen of a man, stepped in front of the screen and said in a squeaking voice, "Look at me." The scene was so ludicrous that the lady burst into hearty laughter, and it was some minutes before she could control her features for a sitting. After that, "look at me," *sotto voce*, was for some time a by-word in the gallery.—*From "The Experiences of a Photographer," by A. Bogardus, in May Lippincott's.*

Photographic Societies.

DEPARTMENT OF PHOTOGRAPHY OF THE BROOKLYN INSTITUTE.

THE regular meeting of the Department for April was held in the music room of the Y. M. C. A. Building, Tuesday evening, April 14th.

Five new names were admitted to the Department, making a total membership of 140.

Professor H. J. Newton, Chairman of the Excursion Committee, reported that he had made an arrangement with the Park management for the Department to visit Central Park on Saturday, April 25th, to photograph the animals and other objects of interest.

Professor Peckham, Chairman of Special Committee on Print Exhibition, stated that an exhibit of work done by members of the Department would be held in the rooms of the Art Association, on Montague Street, during the afternoon and evening of Tuesday, May 12th.

The talk given by the distinguished artist, Mr. J. Wells Champney, on "Selection in Photography," illustrated with slides and impromptu drawings, was the interesting feature of the evening. It proved to be one of the most useful as well as entertaining talks of the many good ones heard during the winter.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting was held on Wednesday evening, April 8th, 1891, the President, Mr. John G. Bullock, in the chair.

The election of the following active members was announced: Joseph T. Rothrock, S. Ashton Hand, and Louis Taws.

The Board of Directors presented their annual report, covering the period since January 1st, 1890.

During this time the following papers had been read before the society: "On the Dangers of Flash-Light Compounds," by John G. Bullock and Dr. Charles L. Mitchell; "The Silver Printing Bath," by Dr. C. L. Mitchell; "Gelatine Emulsions," by William Bell; "Heliochromy," by F. E. Ives; "Intensification," by Dr. C. L. Mitchell; "West African Eclipse Expedition," by John Carbutt, Jr.; "Notes Upon a European Trip," by John Carbutt. Discussions were also held upon the following subjects: "Shutters," "The Optical Lantern," and "Dark Room Illumination."

A marked increase of interest in lantern matters had taken place; two successful public lantern exhibitions had been given at Association Hall, and six complimentary to members and their friends, at the Franklin Institute and at the rooms of the society.

An exhibition of photographs by Mr. H. P. Robinson had been held in the society's rooms; also a display of the work of members, from which the annual honor pictures for 1890 had been selected.

The total active and life members, March 31st, 1891, were 202.

The Treasurer's annual report showed a balance on hand of $1,278.62.

The election of officers for 1891-2 resulted as follows: President, John G. Bullock; Vice-Presidents, Joseph H. Burroughs, Edmund Stirling; Secretary, Robert S. Redfield; Treasurer, Samuel M. Fox; Directors, John C. Browne, Charles L. Mitchell, John Carbutt, George Vaux, Jr., William H. Rau, Frederic E. Ives, Samuel Sartain, George M. Taylor.

The Secretary exhibited a new shutter, the invention of Mr. H. B. Morton, of Minneapolis, known as "The Cloud Catcher." The shutter was of the rotary form, attached to the hood of the lens. The opening in the leaf was of a peculiar shape, allowing full exposure to the foreground and landscape, with considerably less for the sky or distance. The shape and size of the opening could be readily changed to suit the character of the view or intensity of the light.

A modification of the kodak camera was shown, being the contrivance of Mr. S. Ashton Hand, by which the roll-holder could be removed and five double holders put in its place. A ground-glass screen was also provided, which enabled the operator to properly focus a view, as with an ordinary camera. An acid fixing bath in solid form, in the shape of a powder to be dissolved as required, and also a portable developing powder to which the name of "phainogen" had been given, were shown. Both the above were prepared for the market by Dr. Mitchell.

Dr. Mitchell stated that, as the subject announced for discussion was "New Developers," he would start the ball rolling. There had been a great deal of discussion among members of the societies here and in all scientific journals, during the past five or six years, relative to the merits of eikonogen, pyro, hydrochinon, and a combination of these different ingredients. He desired particularly to call their attention to an article in *Photography*, dated March 19, 1891, entitled: "A Series of Experiments on Mixed Developers, and on the Result of Using One Developer After Another." In summarizing that article he believed that the two best results were obtained by first developing the negative in pyro, and then following with a solution of eikonogen; and secondly, by developing the negative with hydrochinon, and then following with eikonogen. The doctor explained one of the methods of experiment taken by the writer of the article in question. A negative developed in hydrochinon had been placed halfway down in a dipping bath filled with eikonogen developer, the result being that the half which had been immersed in the eikonogen was very good, the hydrochinon half harsh and poor. He had found that the same effect occurred by using eikonogen after pyro, although from the general tenor of the article it would appear that the experimentalist thought the hydrochinon and eikonogen treatment a little the best. There was very little difference, however, between the two.

The experiments were fully detailed in the paper, and he (the doctor) would recommend the members of the society to investigate the whole subject, and to make a study of the article, as it was decidedly worth reading. The members were, very probably, familiar with the different forms of dry developers now being put up. In fact, judging from the number of new developers now being placed on the chemical market, he thought the next few years would lead to a marked advance in the way of developing agents, and probably pyro, perhaps hydrochinon, would be placed on a back shelf.

Mr. Carbutt said that he had come to the conclusion that, at the present time, a mixture of hydrochinon and eikonogen was the best developer of the day. The two combined—using about two of eikonogen to one of hydrochinon—would give a developer containing the good qualities of both.

Considerable discussion arose at this point in regard to the merits of exposure meters, in particular the Watkins exposure meter.

Mr. Carbutt said he had received one of the Watkins meters, but had not as yet had sufficient experience with it to speak positively in regard to it. It looked, however, as though it would be a very satisfactory instrument.

Mr. Charles R. Pancoast, President of the Waterbury Photographic Society, said that he had not expected to make any remarks that evening, but he would like to know if any of the members had ever used an exposure meter on an extended trip, taking all kinds of weather and times of year. He thought it was a very interesting subject, and of importance to know just how much time to expose a plate. Last spring, about the middle of April, he made an exposure of Carbutt's B 20 plates, with a Dallmeyer rapid rectilinear lens, stop F 32, and two or three seconds were amply sufficient for a fine negative. Taking these same plates in June, when one would presume the actinic power to be greater, five or six seconds were hardly enough. He mentioned one or two more cases where this difference had occurred, and said he would like to know whether these exposure meters would give the correct exposures, or approximately correct.

Dr. Mitchell said the only one of any real scientific value he knew of was the one Mr. Carbutt had just mentioned—the Watkins exposure meter—and he expected to give it a very careful test. Most of the others were conducted on the plan of placing the meter against the ground-glass and observing the amount of light, which was rather an unsatisfactory way of judging. He then described in detail the various parts and purposes of the Watkins meter.

Referring to Mr. Pancoast's experiences, Dr. Mitchell said that on a very bright day he had often found little actinic power, while on other days, probably overcast, he had found the light act upon his plates very quickly.

Mr. Pancoast asked whether—supposing he desired to expose a plate in a southern latitude, or in this latitude in June, with the sun directly overhead at noon, and he sought to get detail, especially in foliage—this instrument would make any allowance for that, or would it be necessary to make one's own allowance?

Dr. Mitchell replied that the operator would probably have to make his own allowance. However, he was not yet sufficiently familiar with the instrument to say.

Mr. Coates asked whether it was not possible for the makers of plates to come together and agree upon some common basis for designation of the sensitiveness of plates, so that the numbers would always mean the same thing.

Mr. Carbutt thought it would be a very good thing to do.

Mr. Coates stated that in his opinion it was very important that makers should agree upon some uniform basis. As it was, one maker's sensitometer 40 was about equivalent to some other person's 30.

Mr. Earle suggested to Mr. Coates that he express his opinion in the form of a motion, or a sort of "round robin," to be sent to the various photographic societies

throughout the country, to see what they thought about it, and see if the makers could not be brought together.

Mr. Stirling inquired whether any effort had ever been made to get manufacturers together to consider the subject of uniformity in the method of numbering.

Mr. Carbutt said there had not, to his kowledge.

Dr. Mitchell said it seemed to him the only way to attain the desired uniformity would be—pressure; and he thought if this thing were presented in the right way and through the different societies of the country, it would carry an amount of weight that would influence the action of the plate-makers of this country. It only depended upon placing it before them in such a way as to make it appear to their interest to do what was required of them.

After considerable discussion, Mr. Stirling moved that a special committee be appointed by the President to take into consideration the feasibility of starting a movement looking to a uniform method of marking plates, the committee to report to the society, which was carried.

Mr. Chapman narrated an experience he had had with some pyro developer which he had left in the sunlight with the stopper out. The sun turned the solution to a port-wine color. It was a single solution developer, but with it he could build up to any depth without fog, and get dense black negatives on instantaneous exposures. He had not been able to do such work with fresh pyro, kept from the light, or with old pyro with fresh solution added to it. He used it for six months or more, and always got powerful negatives from instantaneous exposures.

Mr. Julius F. Sachse then read his paper (see page 208).

Various prints illustrating his experiments, also a few lantern slides, were exhibited to the members by Mr. Sachse.

Dr. Skinner, an eminent entomologist, who was present, said that this would undoubtedly have great scientific value. The trouble with the present method was that it precluded the possibility of illustrating a great many natural history objects on account of the great expense. The larger and showier species of insects had been illustrated, but the great majority had not, especially in this country. It was a great desideratum to have these things illustrated, because, of course, numerous discussions were had on them, but it was very laborious to attempt to make anything out from these discussions without having colored illustrations, or illustrations showing what the colors might be. They could see at a glance the advantages that would accrue from this new method, when it would take anywhere from an hour to a week to hunt up from numerous descriptions the color values of an object under discussion. The present method on stone was very expensive, took a great deal of time, besides requiring the services of an artist to make drawings, and then the lithographic work, the printing, and finally the coloring by hand. He sincerely hoped that some method of the kind outlined by Mr. Sachse would become successful.

Mr. Carbutt said that the method of illustrating books now by the half-tone process had reached such a state of perfection that he thought, with the aid of orthochromatic photography, it should be possible to make the illustrations for scientific works, with color patches at the foot of each made to match the color of the object, and using the same as a key, as successfully represented by Mr. Sachse. This would save all the research and description of the colors of the objects. He thought it would be of great value, because a person could by its means carry in his eye (having the key below) the color the bird or fly might possess.

The chairman inquired if Mr. Sachse knew whether the sample tissue colors shown were aniline colors or not. Some of these colors were very fugitive.

Mr. Sachse said he could not answer that question. He had used these tissue colors, on the spur of the moment, as the best set of colors he could get. Of course he would try to match the colors exactly—probably by the use of water colors—but the examples he had used were merely ordinary commercial samples of tissue paper, the best he could get.

Mr. Cheyney asked whether it would not be possible to flow orthochromatic plates with a stained soluble gelatine, which would act as a color screen, and thus avoid the necessity of carrying screens to be placed in front of the lens.

Mr. Carbutt said he could only answer that in a theoretical way. He had never tried the experiment, yet did not see why it should not answer. The disadvantages would be, however, that one would be compelled to use the fixed plate as it was, while under present conditions he could use the plate with or without screen, or vary it from the light yellow to the orange, as he desired. This, he thought, was the better plan.

Adjourned.

Robert S. Redfield, Secretary.

INVENTORS' NATIONAL ASSOCIATION.

Its Formation, Election of Officers and Board of Directors, and Other Patent Centennial News.

Mr. Edward T. Fenwick, patent lawyer, Washington, D. C., sends us the following report:

The principal benefit resulting from the Patent Centennial Celebration, just held at Washington, D. C., was the formation of a National Association of Inventors and Manufacturers. This will, without doubt, prove one of the most important events of the nineteenth century, and of vital interest to the inventors and manufacturers of this country. The most perfect harmony and good feeling pervaded all the business sessions, and the National Association was formed without class or sectional jealousy.

The election of officers and directors for the ensuing year resulted as follows: For President, Dr. R. J. Gatling, of Hartford, Connecticut, the inventor of the celebrated gun which bears his name, and which brought him large remuneration and great fame, as well as distinction to our country as the producer of the most powerful projecting gun in the world. The four Vice-Presidents are Dr. Gardner G. Hubbard, of Washington, D. C., an inventor, and the father-in-law of Hon. Alexander Graham Bell, inventor of the telephone; Prof. William A. Anthony, President of the American Institute of Electrical Engineers; Thomas Shaw, Esq., Philadelphia, inventor and extensive manufacturer, and patentee of 110 inventions, and Hon. Benjamin Butterworth, Ohio, former Commissioner of Patents, ex-Chairman of the House Committee on Patents, and now Secretary of the Columbian Exposition.

The selection of Prof. J. Elfreth Watkins, Curator of the National Museum, as Secretary, met with unanimous approval, and was a most excellent choice, as is attested by the success of his untiring efforts during the last four months as Secretary of the Patent Centennial. Mr. M. C. Stone, of Washington, an inventor and enterprising manufacturer, was elected treasurer.

The Board of Directors is composed of the following gentlemen: John Wise Smith, Esq., engineer, Pennsylvania; David G. Weems, Esq., electrical railway engineer, Maryland; Professor R. H. Thurston, of Cornell University, New York; Chas. F. Brush, Esq., inventor and manufacturer of electric lighting apparatus, Ohio; Professor Ottis T. Mason, curator, National Museum, Washington, D. C.; Hon. David M. Smith, manufacturer of sewing machines, New Hampshire; F. E. Sickels, inventor of the first steam steering machinery, Kansas City, Missouri; Oberlin Smith, Esq., manufacturer, New Jersey, and R. S. Munger, Esq., manufacturer of cotton machinery, Alabama. In addition to the regular officers and Board of Directors, there will be representatives in every State, some of which have already been appointed. At an

informal meeting it was suggested that there be a committee of seven on legislation to advance the interests of the patent system before Congress and guard against any encroachment upon the rights of inventors and manufacturers.

The constitution and by-laws, with particulars as to eligibility of membership, will be ready for distribution in a very short time. The annual dues for active membership will probably be fixed at $5, and life membership $100. Provision is also made for associate and honorary members. There will be an annual meeting of all the members, at such place as may be determined upon. It is believed that the results secured by the formation of this national association for the mutual benefit and protection of inventors and manufacturers, and the perfecting of the American patent system will be far-reaching. Every inventor and manufacturer in this country ought to be a member of the association.

Lack of space prevents an account of the eloquent and magnificent addresses, but, as they are to be printed and bound in book form, those who could not attend the centenial celebration will have the privilege of reading them. The highest tribute was paid to the inventor as the greatest and noblest benefactor of mankind. He needs no monument, for his works are a living monument of his toil and ingenuity.

The Editorial Table.

Excursions in Art Letters. By W. W. Story, Boston and New York: Houghton, Mifflin & Co.

The author of "Roba di Roma," "Conversations in a Studio," etc., has issued another work on subjects in art and literature, of which he is so well qualified to treat. The present volume is an appropriate companion to the "Conversations in a Studio," which we mentioned in these columns some time ago. It consists of five chapters, or rather essays, including the following subjects: "Michael Angelo;" "Phidias and the Elgin Marbles;" and "The Art of Casting in Plaster among the Ancient Greeks and Romans." The book is written in the entertaining style so familiar to the admirers of this artist-author. It is a book of nearly 300 pages, neatly bound in dark blue cloth, with gilt top. The price is $1.25, post paid.

Alden's Manifold Cyclopedia. New York: Garretson, Cox & Co.—Volume No. 26 of this useful and convenient Cyclopedia has come to our table, and fully maintains the standard which was set by the earlier volumes. It includes the letters N and O and is fully illustrated, like its predecessors. It is not only a cyclopedia, but is also a dictionary, and its slight cost puts it within the easy reach of all. Bound in half morocco it sells for 65 cents per volume. Full information concerning the publication can be obtained by addressing the publishers.

Record of Photographic Patents.

450,794. Photographic roll-paper holder. George Jones, Rochester, N. Y.

450,963. Waterproof and sensitized photographic mount. Henry Kuhn, Springfield, Mo.

Queries and Answers.

60 A. B. G.—Will you please tell me how to change my doublet landscape lens to a single lens of longer focus? Which combination should be used and in what position?

60 *Answer.*—Reverse the front lens and screw it in the place of the back lens. The ordinary diaphragm is in proper position, and the focus will be more than double that of the combination.

62 W. W. P.—On page 173 "American Annual of Photography" for 1891, two formulas are given for the preparation of the acid fixing bath. Will you kindly give explanation?

62 *Answer.*—We advise to adopt the first formula, that of Prof. Alex. Lainor, which, translated into American weights and measures, would be:

Hyposulphite of soda solution, 1:5.	32 ounces
Acid bisulphite of soda lye	2 ounces

It is the most convenient method, and the bath is probably more active, and keeps better than by any other.

The acid bisulphite is sold by the Scovill & Adams Co. under the name of clarifier, because its main virtue is to clear and to destroy fog from negative or diapositive.

63 R. K. A.—It often happens that the sky in my negatives are faulty. Is there any remedy to overcome this, either while taking the picture, or in printing from it afterwards? What is the reason for a faulty sky in a negative made on a clear day?

63 *Answer.*—We do not exactly understand your query. Do you mean to say, the sky has a tone—it is not perfectly white? If so, let us answer your question with another: "Have you ever seen a perfectly colorless sky in nature?" We rather prefer it to have a tone, because it enhances the artistic merit of the picture. But were a sky really faulty, from developing stains, holes, or abrasions of the gelatine film, we advise to block it out, print from it under tissue paper, and print in an entirely new sky, if you are in possession of a good cloud negative. Excessively dark skies are generally due to over-exposure. If a landscape is photographed rapidly, you will also depict clouds, if there are any, and all other conditions are favorable.

64 MATELOT.—I use the N. P. A. paper, float on a bath 50 deg. strong for two minutes, fume twenty minutes, and the paper prints a good rich color; but as soon as I put the prints in the toning bath, the albumen becomes soft and leaves the paper altogether at times. I use the carbonate of soda toning bath. With it no tone can be attained, and a muddiness prevails over the whole print. With the acetate of soda bath the effects are not quite as bad. I keep my paper always in a damp cellar. May that be the cause of the trouble?

64 *Answer.*—By keeping the paper in as damp an atmosphere as that of a cellar, the albumen film will soften, and that is probably the main cause of the trouble encountered. Secondly, the damp, cold and rainy weather we have had of late has had much to do with it. To prevent softening of the albumen film, keep the silver solution always of a strength of 50 deg. add a little alcohol to it, say 2 ounces to every 32 ounces of it; dry by moderate heat after silvering; print in a glass house if practicable, and warm negative and printing frame before paper is inserted; keep the bath neutral; be extremely careful not to put an excess of alkali in the toning bath, and use *Three Crown paper*.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

W. I. LINCOLN ADAMS, Editor.

Issued every Friday.

Monthly (unillustrated) edition issued on the last Friday of the month.

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" " " six months 2 50
" " " one month's trial 50
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The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.
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Commercial Intelligence.

"Hillside Avenue School,
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"Messrs. Scovill & Adams Co.

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"I am, yours truly,
"M. CLARK."

"Nutley, N. Y., April 23, 1891.

"The Scovill & Adams Co.

"Gentlemen: I received the outfit all right, and am very much pleased with it.

"Yours respectfully,
"WILLIAM BRANDRETH."

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"Messrs. Scovill & Adams Co.

"Gentlemen: I have in my possession a 5 x 8 Stereo Camera of your make, * * * purchased of you several years ago by Mr. W. J. Land, the State chemist of Georgia at the time. It is a splendid instrument, and I wish to know what it will cost to have it fitted with double dry plate holders. * * *

"Yours truly,
"G. F. OLIPHANT,
"President."

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Studio Changes.

Denver, Col. Alexander Lozo had his gallery partly destroyed by the recent fire.

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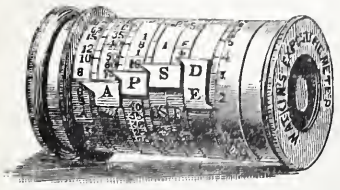
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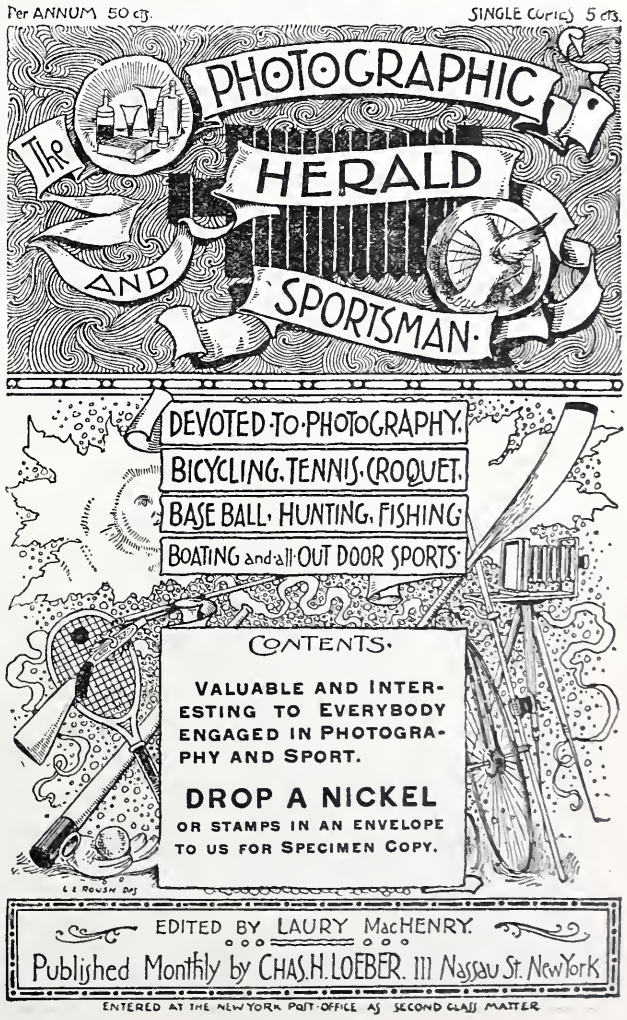
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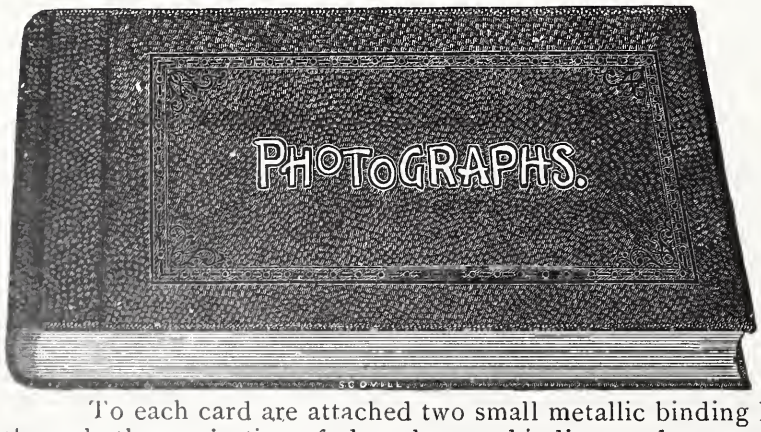
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" 3.	—10x12 " " 6½x 8½ "	2 25
" 4.	—11x14 " " 8 x10 "	2 50

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Morocco, Half Leather, Extra Gold Finish, with A. M. Collins Mfg. Co's Cards. Boxed.

		With 25 Collins Cards.	With 50 Collins Cards.
No. 5.—	7x10 Cards, for 5 x8 Photo's	$2 25	No. 11.—$3 50
" 6.—	8x10 " " 6½x8½ "	2 75	" 12.— 4 00
" 7.—	10x12 " " 6½x8½ "	3 50	" 13.— 4 75
" 8.—	11x14 " " 8x10 "	4 00	" 14.— 5 50
" 9.—	14x17 " " 10x12 or 11x14	5 50	" 15.— 9 00
" 10.—	16x20 " " 11x14 or 14x17	7 75	" 16.—11 00

To each card are attached two small metallic binding loops, so fastened that they act like hinges; through the projection of these loops a binding cord passes, which fastens at the back with a tie; thus each card is bound in the cover independently, and may be taken out and returned or replaced with ease. This method of making an album affords the amateur the best means of preserving the results of his labor, because each picture may be finished before putting the card in the album. The arrangement of the pictures may also be altered at will—if a single card is spoiled the whole album is not ruined. If a picture is taken out, it can be quickly and readily done without injury to the volume.

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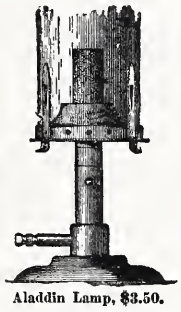
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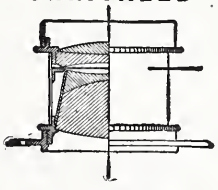
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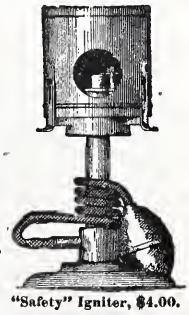
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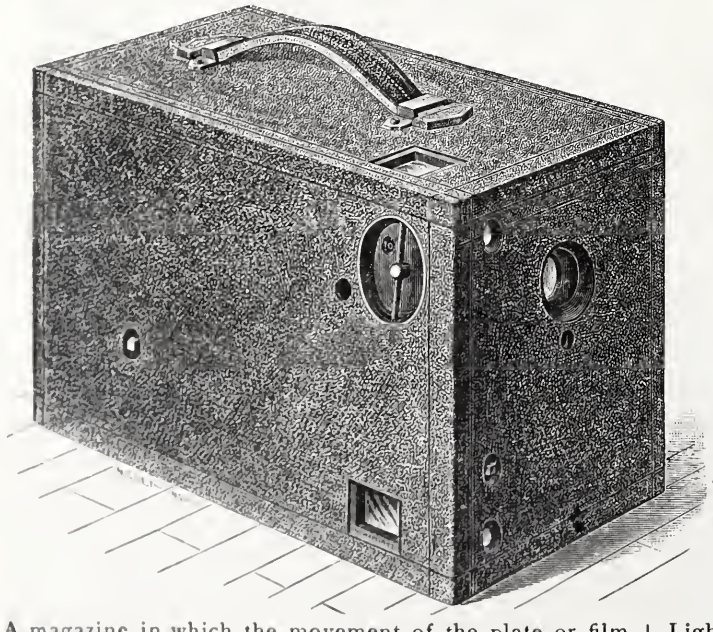
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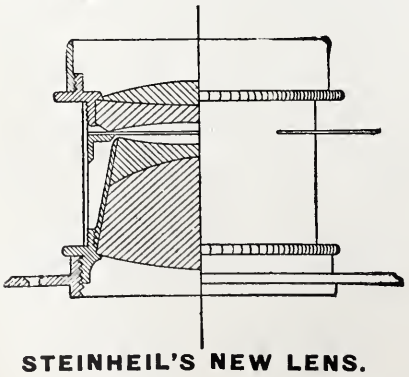
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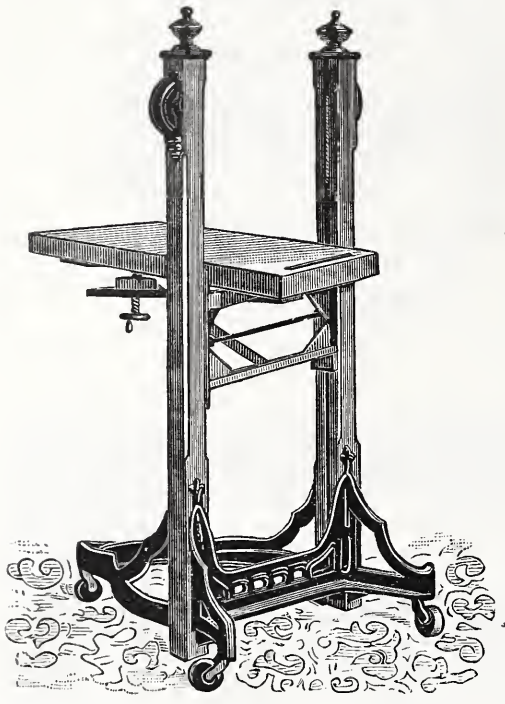
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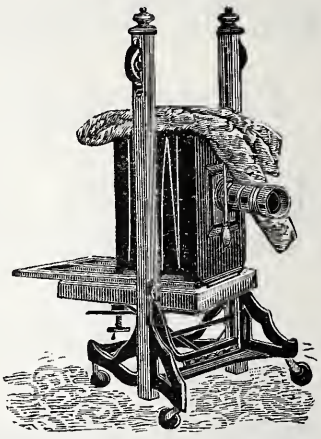
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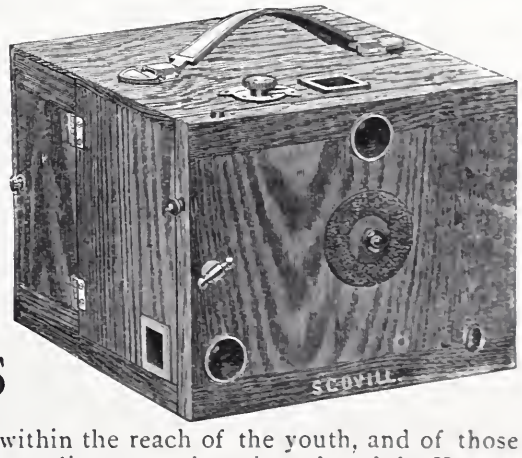
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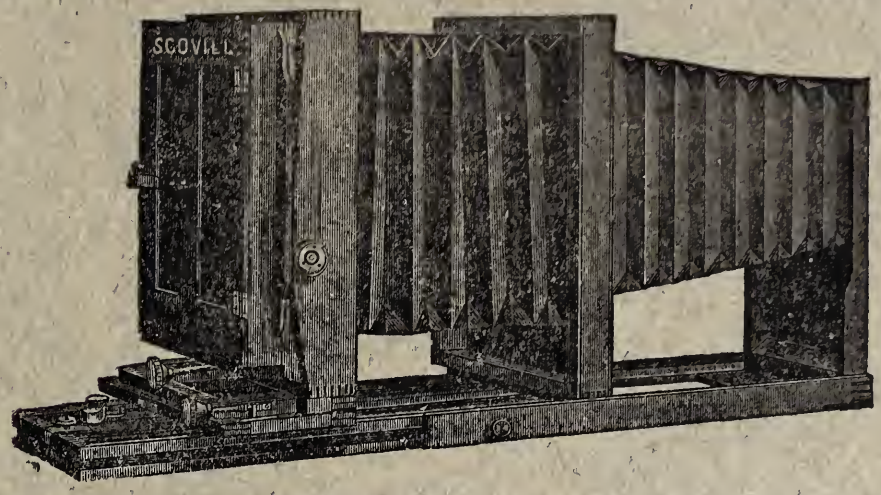
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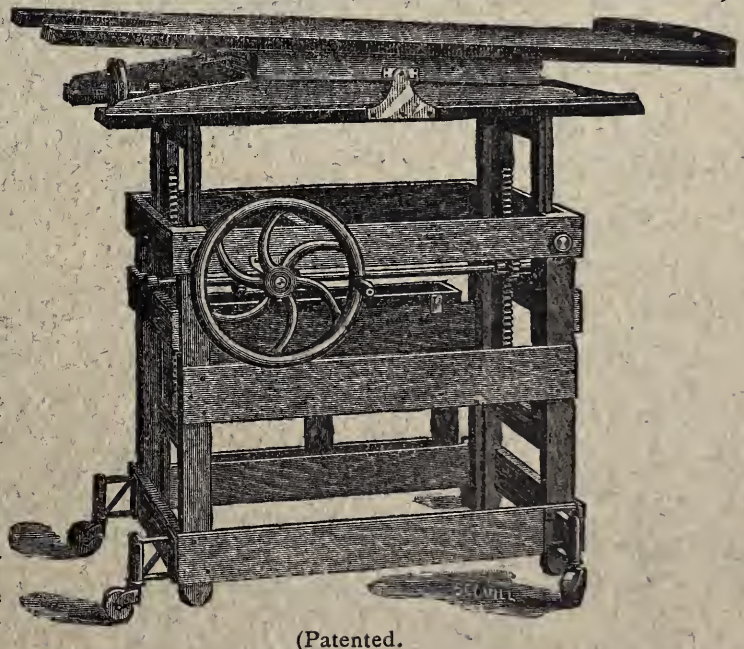
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Lawrence Barrett.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, MAY 8, 1891. No. 503.

LAWRENCE BARRETT.

WE are pleased to give our readers this week a phototype from Mr. Gutekunst's excellent negative of the lamented Lawrence Barrett. The likeness shows the strong face of the tragedian, with his fiery eyes, his determined mouth, and the grizzled hair over the impressive forehead. A study of this face goes far toward explaining the reason why the "lean and hungry" Cassius of "Julius Cæsar" was Lawrence Barrett's greatest achievement on the stage. As some one has said, physical gifts and personal limitations count for more in the actor's calling than in any other profession, and so it was, that by the very limitations of Lawrence Barrett, he excelled in the great characters which he chose to enact.

Mr. Barrett's recent death, and the consequent newspaper notices of his career which every one has read, make it unnecessary for us to speak of his life at this time. Perhaps no actor was better known throughout the entire country than Lawrence Barrett, who was manager and author as well as actor.

THE DAGUERRE MEMORIAL.

IT is nearly one year since the beautiful memorial of Daguerre was placed in its honored position in the Smithsonian Institute at Washington. The committee in charge used their best judgment in selecting the design, and, although there was some cavilling, as is always the case where a large number are to be satisfied, before it was seen, it was universally conceded to be a beautiful work of art, a fitting memorial to the founder of photography.

The money was to be raised by subscription, and a goodly sum was realized, but there still remains a large deficit due the designer, which, if not made up by individual subscription before the Buffalo Convention, must be paid from the treasury of the Photographers' Association.

This is an appeal to all who have not as yet sent in their subscriptions, to do so at once, that the indebtedness may be considerably lessened, if not entirely wiped out, before our next meeting in July. Do we not all take a personal interest and pride in seeing one who has done so much for the art which we love honored in a fitting manner; and are we not one and all ready to do our share, small though it may be, in meeting the expenses necessarily incurred?

There has been about $3,300 paid to the sculptor; about $250 was subscribed that has not been paid, so there still remains nearly $2,500 to be raised to settle the indebtedness. As per vote of the Association at the Washington Convention, the committee are to use every means to secure the balance due, and after all efforts have been exhausted, the balance must then be paid from the treasury.

The committee cannot but feel that contributions will be forthcoming.

If you have not already subscribed for this testimonial to our honored Daguerre, kindly remit to H. McMichael, 426 Main Street, Buffalo, N. Y., any amount from one dollar upwards, that you can spare for this most worthy memorial to one who laid the foundation for our success.

George H. Hastings,
President P. A. of A.

THE TONING OF PHOTOGRAPHS CONSIDERED CHEMICALLY, HISTORICALLY, AND GENERALLY.

CHAPTER V.

THE ACETATE BATH.

The Acetate Toning Bath of Hannaford and Laborde, 1859.—The first mention which we have met with of the use of acetate of soda in the toning bath occurs in the report* of a meeting of the South London Photographic Society, held more than thirty years ago, when, during the discussion of a paper on "Positive Printing," Mr. Hannaford said

* *Photographic Journal* for November 15, 1859, p. 83.

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that "recently he had employed acetate of soda with the gold."

But the first published formula for the use of the acetate bath appears to be that of the Abbé Laborde, which was given in the *British Journal of Photography* for August 15, 1860 (p. 240).

"Dissolve in water..... ...35 ounces
Acetate of soda..... .... 7½ drams
Chloride of gold.....15 grains

"The solution becomes colorless by degrees, and at the expiration of twenty-four hours it is ready for use.

"If the gold bath has been used before, its action will be slower."

By the allusion to the bath having been "used before," it appears that Laborde was acquainted with what is perhaps the most valuable property of the acetate toning bath—its *keeping qualities*. Most toning baths require using the same day that they are made up; but with proper care the acetate bath will last for years. Hence it is especially useful to that class—a large one among amateurs—who tone only a few prints at a time.

Laborde's formula would now be considered too strong; and the following may be considered as the accepted formula of the present day for the acetate toning bath:

MODERN ACETATE BATH.

Distilled water..... 8 ounces
Chloride of gold..... 1 grain
Acetate of soda.....30 grains

Dissolve the acetate in the water at a temperature of 80 or 90 deg. Fahr.; add the chloride of gold to it; and use it when the temperature has sunk to about 65 or 70 deg.

If the gold chloride has not been previously neutralized, it is a good plan to add a pinch of powdered chalk to the acetate bath; it removes any free acid which may be present.

A Preliminary Bath in Salt and Water to Remove Free Nitrate.—The acetate bath is one which requires the free nitrate of silver, and indeed all the soluble salts of silver, to be removed before the print is immersed in the toning-bath. This is best done by rinsing the prints in three changes of water and then soaking them for five minutes in water to which common salt has been added in the proportion of a teaspoonful to every quart. This will redden the prints considerably; and the reddening is in itself a good thing, as it makes the subsequent changes of color more perceptible.

This salt-water bath slows the subsequent toning, and if too much salt be added toning will be rendered difficult.

After soaking in the salt water for five minutes the prints should be again twice rinsed in plain water, when they are ready to be toned.

The acetate bath is preferred by those who like "warm" tones, by which is meant shades of rich brown with a tinge of red in them.

Keeping Powers of the Acetate Bath.—The acetate bath is a favorite with amateurs, because it can be kept ready mixed and used over and over again. Like most alkaline or neutral solutions of gold, it is affected by the light, so that the bottle containing it should have two or three thicknesses of brown paper pasted round it and should be kept in a dark cool corner.

But many people make the mistake of wanting the toning bath to do too much, expecting it to tone after its gold has been exhausted. If we reckon that a grain of gold will tone a sheet of paper, we see that the limit of the toning-power of the modern acetate bath, made up according to the formula given above, would be six whole-plate prints, or twenty-four quarter-plates. But if we make up a good supply of the solution—say a quart—and *add as much gold solution and water every time after using* as will make the solution up to its original measure, calculating the amount of gold to add by reckoning the number of prints toned, then there is no reason why, with proper treatment, the acetate bath should not last indefinitely. The water added should also contain soda acetate dissolved in the proper proportion. Many workers can point to acetate baths which they have had in use "for years," although it is more than probable that not a drop of the original bath, owing to the repeated renewals, remains.

Barnes' Acetate Bath—The following is a good method of working the acetate bath, and is the formula of Mr. C. B. Barnes.*

"Into a gallon stone jar break a fifteen-grain tube of chloride of gold, and add half-an-ounce of acetate of soda, and a small pinch of chloride of sodium (common salt); pour on this about a pint of boiling water and let it stand for an hour or so, then fill up the jar with rain or distilled water, and let it stand for at least twenty-four hours before using. When the bath is required for toning, pour into the dish just the quantity required for present use, and when the toning is completed throw the used solution away. That in the jar will keep good for years, and as no used-up or partially used up solution is poured back, it can be used to the last drop without requiring the addition of fresh gold; added to which it cannot become contaminated by anything which might find its way into the toning-dish, or that portion which has been used therein."

To this we would add the caution—be sure that your "gallon" stone-jar is well glazed within, and scrupulously clean.

* *British Journal of Photography* for 1889; p. 96.

The acetate bath was the favorite toning bath of M. Adam-Salomon, the famous French sculptor-photographer, whose work was so much admired in the "sixties." If a fresh acetate bath works slowly or with difficulty, it is a good plan to give it a start by adding two or three grains of bicarbonate of soda.

Acetate Bath Ready for Immediate Use.—Put 2 ounces of acetate of soda into an earthen jar, and break in the same jar a 15-grain tube of chloride of gold. Pour a pint of boiling water over the mixture, and stir well with a glass rod. Allow the liquid to stand for a quarter of an hour (shaking up occasionally), and then pour it into a larger vessel containing five pints of cold water. Stir well, and the bath is ready for use.

At first this bath will work very quickly, and the prints will reach the slaty-blue tint which marks the "over-toned" stage in three or four minutes. Take them out early, and you will get rich deep sepia tones. This bath is given by Mr. Geo. Bradforde in the *Photo. News Year-Book* for 1881 (p. 108).

Chemical Action of the Acetate Bath.—According to Abney, the chemical changes which take place in the acetate toning bath may be expressed by the following equation:

$$\underset{\text{Gold chloride}}{2AuCl_3} + \underset{\text{sodium acetate}}{NaH_3C_2O_2} = \underset{\text{gold}}{2Au} + \underset{\text{sodium}}{NaCl_3} + \underset{\text{trichlor-acetate}}{C_2O_2} + \underset{\text{hydrochloric acid.}}{3HCl}$$

(*and* / *produce* / *and* / *and*)

The acetate thus combining with the free chlorine liberated from the gold chloride, and thereby preventing it from attacking the silver sub-chloride which forms the dark parts of the print.

W. Jerome Harrison.

To be continued.

A POSTING TRIP THROUGH NORWAY WITH A HAND CAMERA.

Part II.

The following morning we made a very early start. Still ascending we passed by a number of saeters, the mountain farms where the herds are driven in summer to find the grass and brooks which have dried in the valleys below. Many of these little log huts are more than 3,000 feet above the sea, and most picturesque they are with their grass-grown roofs. The women and children greeted us as we passed, and many times we were tempted to linger, as mothers, followed by their little children and the favorite white goats, formed such fascinating living pictures. One of the great industries of the country is carried on in these saeters during the summer. Cheese of many kinds are made, both from cows' and goats' milk. That made from the latter is esteemed a special delicacy; it is soft and smooth, of a light brown color, and has a sweet taste, which to us did not seem rightly to belong to a cheese. We visited one of the chief cheese saeters,



A Salter.

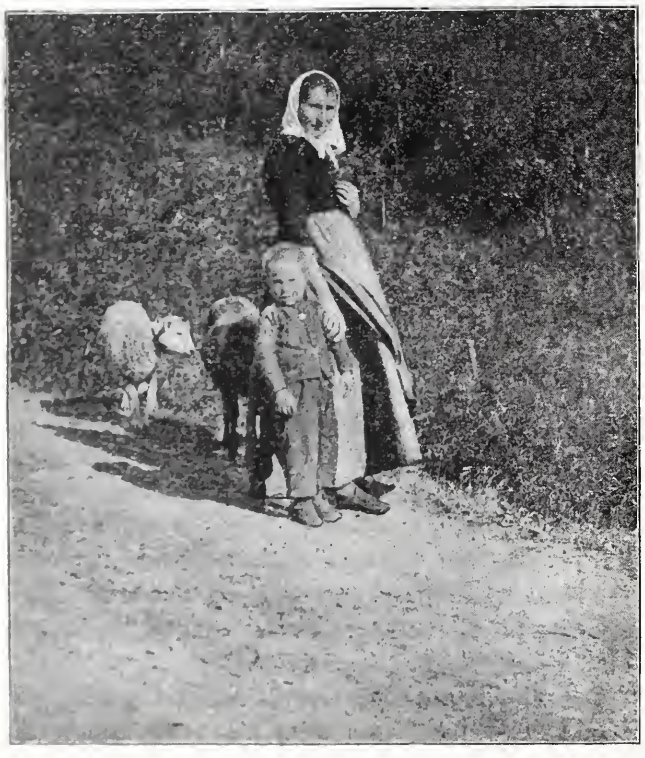
entered several of the little huts, and were interested in seeing the very simple arrangements for working. Everything was extremely neat and very primitive.

Leaving the high and dreary plateau of the saeter region, the country lost its wild and solitary aspect as we approached the wooded hills and smiling valleys of the Valders district. The beautiful Vangs Mjösen lies at its very entrance. This lake is some nineteen miles long. The scenery at its western end is especially fine; in many places the road is cut in the face of the rocky cliff, which rises perpendicularly from the water, following the crooked line of the lake.

Grindaheim, at the western end of the lake, is a pleasant spot for the noonday halt. An hour's rest is the time usually allowed for man and beast. As for the comfort of these inns, we frequently remarked that the hour of twilight gave to them a certain charm which seemed to disappear with the light of morning. Our rooms were usually fairly comfortable. As for the meals—sour bread and poor butter were what we expected, and seldom were we disappointed. The fish is always good, but one ceases to consider even salmon a delicacy after one has breakfasted, dined and supped on it for six weeks. However, in the bracing air of Norway a strong appetite can be counted on which is equal to surprising feats. It is amusing to hear at these inns the Germans and French making known their wants in broken English, for that is the foreign language the Norwegians speak in all the inns and hotels. Many

of the proprietors have lived in America; most of them have relatives there. In no country outside of their own are they so much interested as in ours. This we could readily understand when told by a Norwegian doctor that in Norway there are but a million and a half Norwegians, while in the United States there are a million Norwegians.

As we left Grindaheim behind us we saw the last of the grass-grown and flower-blooming cottage roofs which belong more especially to western and southern Norway. Some of these roofs were masses of white daisies, their slender stems waving in the breeze; others purple with thick clusters of pansies; others again brilliant with the blossoms of a bright yellow flower. From these roofs small birch trees frequently grow, and tied to them one sometimes sees the family dog or favorite goat.



A WAYSIDE PICTURE.

The old time costume in this part of Norway has almost wholly disappeared. Occasionally one sees a farmer whose jacket and vest still retain the silver buttons, but most of these have long since found their way to the antiquity shops, which abound in the towns and cities of Norway. In driving through the country our attention was often directed to what appeared, at first sight, to be telegraph wires. These wires start far up a mountain side, ending at some spot near the road. The question as to their use was answered by an illustration, as we saw a bundle of fire-wood, neatly done up, and loosely tied to the wire, come shooting down, and land almost at our feet. This method is a simple one, saves much labor, and the little ponies are never frightened when these parcels fall suddenly near the road before them.

Just before reaching the end of our day's journey we passed a very small cottage, and were invited by our diligence driver to enter, as strangers were always welcome, pointing as he spoke to a small painted sign, fastened to a tree near the garden gate, which indicated that the finest player in all Norway of a certain musical instrument lived here.

We accepted the invitation with alacrity, and soon found ourselves seated in a little room, having been received with a stately bow by the wonderful player, a very old lady, who sat by a window and performed on a curious stringed instrument, more than a hundred years old, we were told, which was placed on a table before her. She played with her fingers many curious and weird melodies, varying them with the dancing of small jointed dolls, making these keep time with the music, but serious and solemn through it all. We might have been listening to the music still if one of the party had not made a move. As she did so, placing on the table by the side of the old lady a token of appreciation, she bowed, and took her leave. The rest were not slow to follow, each going through with the same ceremony, the old lady receiving it all with silent dignity.

Löken, where we spent our second night, lay but a step beyond. It is rather a pretentious inn, or small hotel, and had little of the twilight glamour about it, though it is situated on a small lake of much beauty. Early to bed and early to rise is the rule in posting through Norway, and we were quite ready to keep it, for the fine weather had tempted us to make the day a long one. The following day our way lay through the most beautiful of the Valders region. Here one sees to perfection on the thickly wooded hill-sides the beautiful Norwegian pine and spruce, the latter with their long and graceful sweeping branches. Early in the day glimpses of the snow-covered Jötunheim range towered in the distance. It was our last sight of the snow mountains of Norway. Later our road lay over one of the lower Valders mountains, and we ascended over a thousand feet, at times looking far down into wooded ravines and valleys.

That night we spent at Tomlevolden, which we found the most attractive inn on our whole route. The old-fashioned house is large and comfortable, with none of the glaring unattractiveness of the pretentious new "small hotel."

Odnaes, the end of our posting-trip, was but half a day's journey beyond. Here we took a

small steamboat which runs the length of the Rand Fjord, and thence by rail in a few hours reached Christiania.

Linked with those pleasant things which one would like to do again is the remembrance of that posting-trip in Norway.

Elizabeth Almy Slade.

FURTHER NOTES ON ELECTRO-CHEMICAL REVERSALS WITH THIO-CARBAMIDES.

As a postscript to my paper on this subject in last month's *Journal*,* it was stated that an experiment with a pair of silver plates coated with precipitated silver bromide, of which one had been exposed to light and the other not, when connected with a very sensitive galvanometer and immersed in a plain eikonogen-lithia developer showed a distinct electrical current, the needle deflecting toward the left, but when a pair of similar plates were immersed in the same way in some of the same developer containing 5 drops per ounce of Professor Reynolds' compound salt of thiocarbamide and ammonium bromide, the current was reversed and the needle deflected to the right. It was found that with the ordinary developer the exposed plate formed the negative pole of the galvanic couple and produces a negative photographic image, while, with the thiocarbamide developer, it becomes the positive pole and produces a positive photographic image. This reversal of the current has since been successfully repeated with the same kind of plates and developer, and also with a developer containing thiosinamine.

Silver plates bromized by immersion in bromine water have also shown the reversal of current clearly, and I have apparently been able to obtain it on ordinary gelatine dry plates, though in this case the currents are exceedingly weak. There is, therefore, practically little doubt of the fact of the reversal taking place.

With siver plates, it was found that the observations were rendered rather uncertain by reason of the comparatively strong currents caused by polarization, especially after the plates had been used a few times, being cleaned merely by a good rubbing with emery powder and polishing, and therefore more or less impure on the surface. They can, however, be rendered pure by heating to a red heat and quenching in dilute sulphuric acid It is desirable to do this always before using the plates.

Experiment having shown that it was possible to obtain evidence with the galvanometer of electrical action between the exposed and unexposed halves of a gelatine dry plate during development with ferrous oxalate, various methods of rendering gelatine dry plates sufficiently conductive to show the currents formed during development were then tried. Among the substances used were: 1. Gilt plumbago, which did not answer very well. 2. Silver bronze powder, which is generally a very good conductor, but did not answer at all in this case; the current from a battery would not pass. 3. Reduced silver in very fine powder, as deposited from mirror silvering solutions. This is an admirable conductor for ordinary electrotyping purposes, and also answered well in this case when applied wet, and polished after drying so as to give a bright and fairly solid coating. 4. Silver leaf. This answered well, but not quite as well as gold leaf.

The gold leaf seems perhaps the best material to use, because the gold conducts the current without exercising any chemical action with the developer, which might of itself cause currents. It is not so readily attacked by the sulphur set free at the negative pole as silver is, though some action probably does take place.

Either gold or silver leaf can quite easily be applied to the plates. The following method is effective:

Take a piece of stout blotting paper rather larger than the sheet of gold leaf; moisten it slightly, so as to leave it evenly moist without being wet, and lay it down carefully over the gold leaf, smoothing it lightly into contact all over. Then lift up the paper, to which the gold leaf will attach itself. The sheet can then be cut into convenient sizes and the pieces applied to the gelatine surface of the dry plates. A piece of hard dry paper is laid over the blotting paper and well rubbed down with the finger. The blotting paper will then be found to come away quite easily, leaving the gold leaf attached to the plate.

Another method, which answers very well, is to coat the glass slips with thin substratum of gelatine and chrome alum; when dry the gold leaf is applied as above. Strips of sensitive gelatine film, which in the case of Wratten's "ordinary" plates, may easily be stripped from the original glasses, can then be transferred to wet blotting paper and laid down over the gold leaf, much in the same way as the gold leaf itself. This method has the advantage that the gold leaf is not in contact with the developer, and the currents seem to pass quite as easily as when it is outside the gelatine films.

The dry plates used were Wratten's "ordinary,"

* *Journal of the Photographic Society of India.*

in slips about 4 inches long and 1¼ inches wide, the same as the silver plates.

The gelatine offers a considerable resistance to the electrical current. A current from a bichromate cell, which when passed through a pair of bromized silver plates in eikonogen developer will mark a deflection of between 80 deg. and 90 deg. with the tangent galvanometer, when passed through a pair of gelatine dry plates faced with gold leaf and immersed in the same developer will mark only 40 deg. to 50 deg. Consequently, the currents produced by the action of developers with or without thiocarbamides on exposed and unexposed dry plates are exceedingly weak, and only just perceptible with the very sensitive suspension galvanometer. With silver plates coated with silver bromide the currents are very much stronger, but, as stated above, the results are somewhat uncertain owing to polarization currents. In all cases the currents produced with the thiocarbamide developers are stronger than those produced with the plain developer.

It is not yet quite clear how this reversal of current is produced, but some observations by W. Skey, recorded in Vol. XXIII of the *Chemical News*, throw a good deal of light on the matter. He found that metallic sulphides, which have the power of conducting, are also capable of generating electricity; and from a list he gives of the relative polarity of different sulphides, it appears that silver sulphide is positive to silver. In a battery consisting of a sulphide and a metal in acidulated water, the gas liberated is sulphureted hydrogen, the nascent hydrogen exerting a desulphurizing action upon the metallic sulphide, the ultimate effect of which is in some cases to completely reduce the mineral to the metallic state.

This seems to bear out the observation recorded in my first paper of the *reducing* effect of the thiocarbamides in alkaline solution on silver haloids.

Skey also shows that sulphides are capable of performing the function of the negative element of a galvanic couple.

We have seen that the galvanometer shows that with the ordinary developer the exposed parts of a sensitive surface of silver bromide form the negative pole of a galvanic couple, and, consequently, by the laws of electrolysis they attract the deposit of reduced silver, the alkaline metal and the hydrogen, while the liberated bromine or other acid radical elements and the hydroxyl go to the unexposed parts forming the positive pole.

On the other hand, with the thiocarbamide developers silver sulphide is formed by the action of the developer on the unexposed parts of the picture, which then become the negative pole instead of the positive, and attract the sulphur, the hydrogen, the alkaline metal, and some of the deposited silver formed by the action of the developer on the exposed parts of the plate, which now become the positive pole and attract the bromine, the hydroxyl, etc.; the former combining with some of the remaining deposited silver to form silver bromide, which is dissolved out by the fixing solution, leaving more or less residue of reduced silver.

There can be little doubt, I think, that this is, roughly stated probably, the correct explanation of the reversals, though much remains to be done in working it out fully, in order to throw more light on the various reactions which take place. A further investigation might result in finding some method of making the photographic reversals more perfect, and it seems likely that an electrolytic examination of various developing agents would afford valuable information on the general theory of development. The currents produced are, however, so weak that their satisfactory observation would be a matter of difficulty. The subject is one of which I have very little knowledge, but it is to be hoped that the investigation may be taken up by some one more competent to deal with it.

J. Waterhouse.

CONTRIBUTION TO THE STUDY OF HYDROCHINON, AND OF ITS USE AS A DEVELOPER IN PHOTOGRAPHY.

[Translated from the Bulletin of the French Photographic Society by P. C D.]

THE number of developers and of formulas which were published is considerable; therefore it would be unreasonable to communicate a new one if the considerations upon which it is based did not appear interesting for the persons who desire not to work at random.

Why have I selected as a subject of study hydrochinon, rather than any one of the other developers employed in photography? A reaction, a hazard, attracted my attention and were the starting-point of the experiments given in the following lines, which I recommend to the attention and indulgence of the reader.

ON CERTAIN PROPERTIES OF HYDROCHINON CONSIDERED AS A DEVELOPER.

Hydrochinon is a body possessing a great affinity for oxygen, specially in presence of an alkali or an alkaline carbonate.* The oxidation is instantaneous in presence of bodies such as silver oxide, capable of furnishing oxygen in the nascent state.†

* This can be demonstrated by agitating in contact with the air a solution of hydrochinon and caustic potash. The solution, which at first is colorless, turns yellow, then red; hydrochinon is then oxidized and has lost its reductive property.

† If silver oxide is diffused in water, and to this solution if hydrochinon be added, the mixture instantaneously blackens, a deposit of metallic silver is formed, and the liquid becomes red, more or less deeply.

Hydrochinon is, therefore, an energetic reducing agent. It reduces at once and completely silver oxide; more slowly, but completely also, silver carbonate; and, lastly, more slowly still, and incompletely, the silver salts formed by mineral acids, such as the nitrate, etc. In the latter case the reduction is not complete, on account of the formation in the liquid of an acid (nitric, hydrobromic acids, etc.) which prevents the oxidation of hydrochinon; but if this acid finds either an alkali or a carbonate, it is saturated, and the reduction proceeds until all the silver salt is reduced.*

It is on these conditions that one prepares a photographic developer, which is nothing else than a reducing agent of silver salts.

But the addition to hydrochinon of a carbonate, or of an alkali, by exalting its reductive power renders it by that fact so avid of oxygen that it will rapidly absorb it from the air and soon become useless as a developer.

There is a body—probably there are others—the sulphite of sodium, which has the property to moderate this tendency of hydrochinon to oxidize in presence of *free* oxygen.† By adding this salt in proper proportions, hydrochinon keeps well until the moment it will be in presence of *nascent* oxygen, when it recovers all its energy and acts as a powerful reducing agent.

Hence, it is by the harmonious combination of these three substances—hydrochinon, alkali, sulphite—that we will endeavor to compose a perfect developer.

The method which we will follow is this :

1. Determination of the reductive power of hydrochinon.

2. Determination of the quantities of alkalies, and of their carbonates, corresponding to a given quantity of hydroquinon.

3. Determination of the quantity of sodium sulphite necessary and sufficient for the correct action of the developer.

I.—Determination of the Reductive Power of Hydrobhinon.

(Equivalance related to silver nitrate, 1 gram.)

The operation is based on the property of hydrochinon to entirely reduce the silver oxide dissolved in sodium sulphite (the demonstration of this fact will be given in the next paragraph). Hence, we will take 1 gram of silver nitrate dissolved in 30 c.cm. of distilled water and precipitate this solution by a slight excess of caustic potassa. The silver oxide thus formed will be washed by decantation, then dissolved by sodium sulphite, 5 grams,‡ to obtain a solution of 50 c.cm.

To this solution will be added another of hydrochinon, 1 : 200, in quantity sufficient to completely reduce AgO :* the experiment demonstrates that 8 centigrams of hydrochinon are *necessary* and *sufficient* to reduce all the silver oxide ; hence we have the following equivalence :

Silver nitrate..... ....1.
Hydrochinon 0.08

which signifies that hydrochinon 0.03 suffices to completely reduce silver nitrate 1 gram.

Influence of Sodium Sulphite on the Precipitation of the Reduced Silver.—Here the following double question is naturally placed :

1. Is not the sodium sulphite, which retards the oxidation of hydrochinon, an obstacle to the complete precipitation of metallic silver?

2 If the precipitation is complete, is it a relation between the march and nature of the precipitation and the quantity of the sulphite?

I. The precipitation is complete ; it suffices to demonstrate it of making the following experiment : Precipitate 1 gram of silver nitrate by KO ; wash the precipitate by decantation, and diffuse it in 50 c.cm. of distilled water. Now add exactly 7 centigrams of hydrochinon and wait, agitating all the while that the hydrochinon has exhausted its reductive action. Then collect the precipitate, wash it, treat it by acetic acid and filter. In the liquid thus obtained sodium chloride will form a precipitate, which proves that a certain quantity of silver oxide was not reduced and was dissolved by the acetic acid.

The same experiment, made with 8 decigrams of hydrochinon, will give a liquid in which no precipitate will be formed by sodium chloride. This shows, therefore, that this quantity of hydrochinon is *necessary* and *sufficient* to reduce all the oxide from 1 gram of silver nitrate. Hence, we come to the same conclusion as precedently in presence of an excess of sodium sulphite, which we wanted to demonstrate.

II. To study the action which sodium sulphite exerts on the precipitation of metallic silver, it suffices to prepare several solutions, each one holding the same quantity of silver nitrate, but increasing doses of sodium sulphite. This done, if one adds in each one caustic potassa in sufficient quantity, and the proportion of hydrochinon necessary for the precipitation of all the metallic silver from the oxide, it will be easy to ascertain that from the solution not very rich in sulphite the silver is thrown down as a *black* deposit, and as a *gray-white* from the solutions which contain a large dose of the salt in question.

Furthermore, the precipitate is more slowly although completely formed in presence of a great excess of sulphite.

Hence: *Sodium sulphite in excess retards the formation of the metallic silver deposit and bleaches it ;* it is consequently important not to add more of it than it is necessary in the composition of a developer.

II.—Quantities of Alkalies and of their Carbonates corresponding to a given quantity of Hydrochinon.

A simple calculation of the chemical equivalents gives the proportions following:

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* To demonstrate the action of hydrochinon on the carbonate and nitrate of silver, it suffices to provide with two test-tubes. One diffuses in the first a small quantity of silver carbonate freshly precipitated; in the other a few cubic centimeters of silver nitrate 1:50 are poured. In the two tubes, if an excess of hydrochinon dissolved in water be added, one will find in the former a black precipitate of metallic silver and no carbonic acid, and in the latter a light precipitate, gray by reflection, blue by transparency, also consisting of metallic silver, but some will remain in solution in the liquid. This will be proved by adding a solution of potassa 1: 100, which by saturating the acid, causes the precipitation of a new deposit of metallic silver.

† To demonstrate it, it suffices to agitate in contact with the air a test tube holding a solution of hydroquinon and KO, and another containing a semblable solution with sodium sulphite ; in the first one the substance will soon turn yellow, then red ; the solution in the second will remain colorless.

‡ This quantity of sulphite is strictly necessary to dissolve the silver oxide corresponding to 1 gram of silver nitrate.

* To ascertain when the experiments are at an end, one filters the liquid after every addition of hydrochinon ; when a new addition does not color the liquid all the silver is precipitated.

Silver nitrate	1 gram
is equivalent to	
Caustic potassa	0.33 gram
Caustic soda	0.2353 gram
Potassium carbonate	0.4064 gram
Sodium carbonate	0.8111 gram

Hence, to 0.08 of hydrochinon, one should add one of the above alkalies in the proportion given in this table.

III.—DETERMINATION OF THE QUANTITY OF SODIUM SULPHITE NECESSARY AND SUFFICIENT FOR A PERFECT ACTION OF THE DEVELOPER.

From what precedes I and II, we have seen that for 8 centigrams of hydrochinon 33 centigrams of caustic potassa, for example, are necessary. Let us make the following solution:

Hydrochinon	0.08 gram
Caustic potassa	0.33 gram

And to it let us add increasing quantities of sodium sulphite. We remark, if we briskly agitate this solution, or, better, if we pass into it a stream of gaseous oxygen, that it turns yellow the less rapidly as it is richer in sulphite. It will even come in a moment, provided the operation is well conducted, where the solution does no more than turn yellow or very slightly; then there will be enough sulphite. It is the determination of this necessary and sufficient quantity which will be the object of the experiments following. I will only describe one with some details; they are all made in the same manner.

Experiment.—I make, therefore, a solution of

Hydrochinon	0.08 gram
Potassa	0.33 gram
Sulphite	0.08 gram
Distilled water	20 c.cm.

and agitate it with four or five times its volume of air. It rapidly turns yellow, and the color does not disappear when set to rest. I now pass through it a stream of oxygen for one hour; the liquid becomes darker and darker, and finally keeps the brown-red tint.

The quantity of sulphite is consequently insufficient.

I make this experiment over, but in successively increasing the proportion of sulphite and hydrochinon to $\frac{2}{1}$, $\frac{3}{1}$, $\frac{4}{1}$, $\frac{5}{1}$, $\frac{6}{1}$, $\frac{7}{1}$, $\frac{8}{1}$, I remark then that for 1 part of hydrochinon and 4 parts of caustic potassa, 7 parts of sodium sulphite are necessary, in the conditions of the experiment, to keep the solution colorless or slightly pale-yellow, that is to say, the inalterability of hydrochinon. Therefore, I adopt the following formula, which to me appears excellent:

Hydrochinon	1 part
Caustic potassa	4 parts
Sodium	7.5 parts

The same series of experiments is made in presence not of an alkali, but of a carbonate. Everything being equal less sulphite is necessary than with a caustic alkali. I find the proportion following:

Hydrochinon	1 part
Sodium carbonate	10.5 parts
Sodium sulphite	5 parts

Consequently: *The proportion of sulphite depends not only on the quantity of hydrochinon, but, first, on the relation between the hydrochinon and the alkali; and, second, on the choice of the alkali.*

SUMMARY.

We now possess all the necessary elements to compound rationally a developer based on hydrychinon, and it is now possible to making the proportional table following:

Silver nitrate, 1	Hydrochinon 0.8	Caustic potassa 0.33	Sodium sulphite 0.60
		Caustic soda 0.2353	
		Potassium carbonate 0.4064	Sodium sulphate 0.40
		Sodium carbonate 0.8415	
	Distilled water, quantum sufficit.		

We have, therefore, the choice between one of these four formulas, and experience alone will tell us which is the most advantageous. However, if we consider that 8 grams of hydrochinon are capable of reducing 100 grams of silver nitrate, one can suppose that a developer prepared with 8 grams of hydrochinon by liter of water will be quite sufficiently energetic.

It is evident, *a priori*, that a developer made with an alkali will be more energetic than one with a carbonate, everything being equal.

For instantaneous subject, one will prefer a developer with an alkali. For time exposure, a slower developer (with carbonate) will be more advantageous because it will be more easy to watch the cliché.

It is by a judicious and combined use of these two kinds of developers that one will succeed in obtaining perfect results.

H. Reeb.

Notes and News.

Nadar, of Paris, announces an illustrated monthly photographic review, the first number of which will shortly appear. It is to be entitled "Paris Photographe."

Native amateur photographers are said to be very plentiful in Siam. So plentiful are they, according to the report, that it is contemplated to pass laws for their suppression, making their amusement a capital crime.

Debutantes at the Queen's drawing-rooms proceed to the photographer directly the ceremony at the palace is over. The practice has become so general that the photographers make great preparations for the drawing-room day.—*Woman's News.*

Photography as a profession for women presents no phases to which the most fastidious and conservative can object. A woman in London has opened a studio, where the posing, taking, developing, and finishing of photographs is done entirely by women.

Miss Nevins, a Brooklyn girl, earns her living by giving lessons in photography to men and women who wish to understand and use cameras for amateur or professional purposes. She also prints and mounts much of the work of her patrons and pupils, besides taking orders for photographic work from illustrated magazines, newspapers, and architects.

Lovers May Now Fasten their Cuffs with their Sweetheart's Images.—A summer novelty is a cuff-button made to hold small photographs. To all appearances it is a plain, rectangular button, ornamented in enamel, but the top may be pushed to one side, revealing a place for a picture. This may also be moved in the opposite direction, and in this way places for four pictures may be found.—*Philadelphia Record.*

"Amateur photographers," says a photographic printer, "sometimes take queer things. Recently I was called upon to make prints of an ossified man who has lain helpless in bed in a New Hampshire farm-house for thirty years. They were for his people, and by their instructions the plate was returned to them. Dogs, cats, naked babies, and children wading in the surf are favorite subjects."

The Russian photographers have a peculiar way of punishing customers who do not pay their bills. They hang out the pictures of such customers upside down. One of the Odessa dailies thinks that the photographers may be right in treating their delinquent adult customers in such a manner, but it regards it as wrong to expose to scorn the pictures of children ordered by parents who would not pay their bills.—*New York Sun.*

Canon Liddon, of England, deceased, had a great objection to being photographed or painted. Twenty years ago he had refused all requests to sit for his portrait, but the late Earl Beauchamp was so desirous of possessing a picture of him that he promised to endow Keble College with $75,000 if he would sit to George Richmond, and Canon Liddon consented. This is probably the most expensive portrait of modern times.

The Use of Stereopticons on Mission Grounds is becoming more and more general, and especially in India is very advantageous. Dr. S. B. Fairbanks, of Ahmadnagar, finds that it enables him to draw larger audiences, and reach them more forcibly at a time when both men and women are free from the labor of the day. It appears also that a large portion of the attendants are women of all castes, whom it would be impossible to reach in any other way.—*Independent, April* 29.

A clever suggestion for photographic dinner cards comes to us from France. Platinotypes, or blue prints, are made with a blank space left for the menu and guest's name marked out in the printing, and these are afterwards written in. The scene photographed is a local one, the house where the dinner is held, or a view of the picnic grounds. The whole thing is so easy to accomplish that it will undoubtedly commend itself to many of our readers.

A Royal Amateur Photographer.—The Princess of Wales, who is an experienced photographer, has sent a large selection of her best productions to the great international exhibition to be opened next month in Vienna, under the patronage of a fashionable club of amateur photographers, presided over by the Archduchess Maria Theresa. Under ordinary circumstances the Princess would have as competitors the Grand Duke Ferdinand of Tuscany and the Archduchess Maria Theresa herself; but it has been arranged that the numerous royal exhibitors shall all be hors concours.—*New York Tribune.*

The Silver State Camera Club gave a lantern slide exhibition at Odd Fellows Hall, Carson City, Nevada, on the evening of April 3d, which was well attended. The slides were prepared by the California Camera Club, of San Francisco, and the Carson City Club expects to reciprocate by sending a similar collection to San Francisco for exhibition.

Mr. W. H. Jackson, of Denver, has recently returned from a tour through Mexico, where he made about 600 negatives of the best scenery Mexico affords, and of the most interesting characteristic Mexican views. He was delightfully surprised with the scenery of the country, which he pronounces quite equal to the grandest and best in the Rocky Mountains, and he confidently expects some of his panoramic views (for which he is noted) will create a stir.

Stanley Portraits.—The statement in our April 17th issue, that Stanley refused to sit for his portrait to any photographer until he reached San Francisco, and have J. W. Tabor of that city photograph him, is not true, as Mr. C. R. Savage, of Salt Lake City, made an excellent portrait, not only of the great explorer, but also of his charming lady. To be accurate, the son, R. G. Savage, made the portrait in the studio of his father, and also a beautiful landscape, which is sent to us with the Stanley portraits. We shall hope to show all three pictures to our readers before many weeks have elapsed.

The Society of Amateur Photographers of New York and the Brooklyn Academy of Photography have arranged to tender to the delegates attending the American Photographic Conference an Excursion around New York Harbor, on the afternoon of Wednesday, May 27th.

The undersigned, having been appointed a committee on behalf of their respective organizations to arrange the details, desire to announce that the large steamer, "Laura M. Starin," has been engaged, and that she will start from Jewell's Wharf, Brooklyn, at 12.30 P.M.; and from Pier 1, N. R., New York, at 12.45 P.M.

Dark room facilities will be arranged for the changing of plates. A competent caterer will also be on board. Persons desiring tickets can apply to any member of the committee.

Brooklyn Academy of Photography—Harry S. Fowler, 578 Halsey Street, Brooklyn; Frederick M. Lawrence, 129 Broad Street, New York; Starks W. Lewis, 24 South Street, New York. Society of Amateur Photographers of New York—T. J. Burton, 113 West 38th Street, New York; F. C. Beach, 361 Broadway, New York; Fred Wilmar, 66 Duane Street, New York, *Committee.*

Tickets can also be obtained from Edward H. Quantin, 32 Court Street, Brooklyn; Obrig Camera Co., 152 Broadway, New York; Lloyd's, 845 Sixth Avenue, New York; Pollock & Ricke, 416½ Sixth Avenue New York.

PHTOGRAPHY AS IT WAS AND IS.

THE art of photography has been so largely developed in America as elsewhere of late years, that it has taken its place beside painting and sculpture, and the camera holds a high position as a valuable adjunct to the pencil and chisel. Like everything else which encourages a taste for the beautiful, it also contributes to elevate and refine the masses. It is a grand privilege to represent the sublime in natural scenery, to bring to the life before us the scenes of other lands to their minutest details, and to delineate the face and form of the great and good and loved ones, full of expression, caught by the light-giving rays of the sun. From the highest and best developed photograph, perfect in pose, lights and shadows, to the commonest tintype, a new source of pleasure, amusement, and profit has been introduced into the world by photography.

Having been an ardent devotee of the art since its earliest introduction here, through the times when photography required severe study in its chemistry and manipulation (before kodaks were thought of for lazy people), I think a few notes on its progress to its present perfection may not be uninteresting.

Photography may be said to date its origin from the time of Baptista Porta, who discovered the camera-obscura in the sixteenth century. Between this period and the time of Wedgwood and Davy only a few isolated facts bearing on the case were brought to light at long intervals, and it would profit little to mention them all in their order. I shall only give a brief description of the most important discoveries up to the time of Daguerre and Niepce.

The property possessed by the salts of silver when decomposed by the action of light was well known to the earlier chemists. Mr. Wedgwood, however, was the first who recorded his attempts to use the sunbeams for photographic printing. In the year 1802 he published a paper in the *Journal* of the Royal Institution of London an account of a method of copying painting upon glass and of making profiles by the agency of light upon nitrate of silver, with observations by H. Davy, afterward Sir Humphry Davy. From this paper we get the earliest process of sun painting and the first indication of the great discoveries which have followed.

In the year 1812 M. Berard brought the result of some valuable experiments before a commission, composed of MM. Berthollet, Chaptal, and Biri, who stated in their report that M. Berard had discovered that the chemical intensity was greatest at the violet end of the spectrum. When he left substances exposed for a certain time to the action of each ray, he observed sensible effects, though with an intensity continually decreasing in the indigo and blue rays. Hence they considered it as extremely probable that, had he employed more sensitive agents, analogous effects would have been attained. From that time numerous experiments were conducted by several eminent researchers, including the discovery of the more celebrated MM. Niepce and Daguerre.

The experiments of M. Niepce date back to 1814, but it was not till 1823 that he was made aware that Daguerre was pursuing the same line of studies. After this their investigations were prosecuted in common, and later came the discovery of the branch of the art since known as the daguerreotype. In 1833 M. Niepce died, and in 1839 Daguerre communicated his discoveries to the world.

Professor S. F. B. Morse was in Paris at that time and sent the formulas of the Daguerre process to his brother Sidney Morse, then editor of the New York *Observer*, and he published them. The professor returned to New York the same year and commenced experiments with Professor John W. Draper, of New York University. The latter gentleman had for more than ten years worked in the same direction as Daguerre and Talbot, long before they had published anything on the subject. In communications to the American Institute and articles published in the transactions of the *Journal* of the Franklin Institute, the chemical effects of light had been treated of by Professor Draper (or Dr. John W. Draper, as he was best known). He also habitually used sensitive paper, and so early as 1837 examined the impressions of the solar spectrum, proving the interference of chemical rays (*i. e.*, their destroying of each other's effect); investigated the action of moonlight and of flame, either common or colored, red or green; also the effect of yellow and blue solutions and other absorbing media; the decomposition of carbonic acid by lights, etc.

Dr. Draper solved the problem of photographic portraiture, having made the first portrait from life ever taken by any photographic process. In March, 1840, he sent an account, which was published in the *Edinburgh Philosophical Magazine*, of his process in detail, and sent specimens of portraits he had taken under the brilliant summer sun of New York. Daguerre had not then ventured on portraits, as it was supposed to require twenty-five minutes' exposure for a landscape alone. Sir David Brewster confirmed this in an article to the *Edinburgh Review*, January, 1843.

The different processes that followed Daguerre's were very numerous, and some of the most prominent were those of Fox Talbot, Sir W. J. Newton, M. Le Gray, Dr. Diamond, and Messrs. Geoffroy and Lespiault. Nearly all of the above were excellent, and gave fair results and were extensively used by both professionals and amateurs. In 1851 Frederick Scott Archer made known his beautiful collodion process on glass, which was a most important addition to the art and superseded all others known. The value of his discovery can hardly be over-estimated, when we take into consideration the great benefits which have accrued from it, as well as the application of the process to so many branches of art that give intelligent employment to thousands of people and bring into use millions of capital. Its employment, however, required serious brain work and the most delicate manipulation to secure success. To give an idea of the value of photography in an industrial point of view, I will give a few statistics very carefully taken twenty-five years ago:

Silver bullion manufactured into nitrate of silver, 50 tons per year.

Pure gold manufactured into chloride of gold, half a million dollars' worth.

Hyposulphite of soda, 550 tons.

Of acetic acid there was sold in New York City alone 50,000 pounds.

Saxe and Reeve's paper supplied the United States with 30,000 reams.

Eggs used for albumenizing paper, over 37,000 pounds.

Sulphuric ether for New York alone, 40,000 pounds.

Alcohol, 15,000 gallons.

Card mounts could hardly be estimated, but they were sold by millions.

Thousands of dollars' worth of glass was sold yearly,

and the proprietor of one establishment informed me that he had on his shelves $20,000 of photographic glass.

The iron for ferrotypes was imported from Wales, and at least 100 tons were used yearly. In future this will be made here. Thus it will be seen of what importance the art of photography is to us, and if reliable statistics were made to-day, I do not doubt that the above figures would be trebled.

In 1856 or 1857 I exhibited to the members of the New York Photographical Society negatives made by a dry process that I had formulated about a year before. They were very sharp and beautiful in detail, but from the length of exposure (six minutes) and the two or three hours required for the development, it was supposed that they could never come into general use. Soon after I made some modifications of the process which shortened the time of exposure to one minute. I think these were the first dry plates made in America, and they were heartily approved of by Dr. J. Draper, under whose presidency I served then as vice-president of the New Pork Photographical Society. In my remarks to the members, I stated that I believed dry plates would in the future be universally used.

My opinion has been fully verified. It is not my intention to speak of the numerous workers in this field in America who have more than realized the dreams of early heliographers. I will just glance at one phase of the art to-day. The actual work is all done for the operator. Dry plates for the million have taken the place of wet ones, with a vengeance. They are all prepared, and all the solutions mixed ready for use. In my day we had to mix our own, and first study the chemistry of the art before we mixed them. As the sellers of the kodaks advertise, "You press the button, and we do the rest." They have found literally a "royal road" to photography and a convenient one for travelers or people pressed for time.

The world of art has been startled lately by the news which has reached us from Paris, that Professr Lippmann, Professor of Physics at the Sorbonne, has announced to the Academy of Sciences at their last meeting that he has discovered a new process in photography by which colors throughout the whole range of the spectrum can be reproduced on a sensitive plate most accurately. Colors are but numbers of light waves as outlines or shadows are fixed by the present photographic negative and print. The professor's first attempts to take colored photographs have not gone beyond the experimental stagei. A long time will, we fear, elapse before this branch of the art is brought to the perfection of the others. After a few weak attempts the professor has succeeded in photographing a stained window in colors as brilliant ss the original.

According to the meager accounts given to the public, it seems that the plates are pressed against the opening of a trough of mercury which formed a mirror in contact with the plate. The rays of light pass through the sensitive film, as in the old process, but on reaching the other side of the plate, instead of being absorbed by a dark background, they are sent back by an even surface of the mercury. In this mirror the whole secret lies, for apart from it the process is the same as in ordinary photography.

Daguerre frequently said that when he had been copying any red brick or painted building the photograph assumed a tint of that character, and he labored considerably for the attainment of colors. So did his colleague Niepce work to the same end, with his bitumen-coated tablets, and the report spread all over Europe that he had actually made the great discovery.

Nicolas Pike,
In the Scientific American.

(*To be continued.*)

The Editorial Table.

Photographic Optics. By Professor W. K. Burton. New York: The Scovill & Adams Co.

This practical text book for the professional and amateur, by Professor Burton, is an important addition to photographic literature. No subject is more important to the photographer than the subject of photographic optics; yet, strangely enough, few subjects connected with photography have received so little attention by those who are qualified to teach. So far as we know this is the only book published which treats of this important subject from the photographer's standpoint.

Its table of contents gives a better idea of the scope of the work in the same amount of space than we could give in any other way. It is as follows: Chapter I, Light; Chapter II, On the Reflection, Transmission, and Absorption of Light by Matter; Chapter III, Refraction of Light; Chapter IV, The Formation of the Image in the Photographic Camera—Photographic Lenses; Chapter V, On Photographic Lenses (continued); Chapter VI, Measuring the Focus and Apertures of Lenses—Estimating the Rapidity—Testing Lenses; Chapter VII, The Swing Back Optically Considered; Chapter VIII, Optical principles Involved in Enlarging; Chapter IX, View Meters and Finders; Chapter X, The Optics of Stereoscopic Photography; Chapter XI, The Spectroscope; Chapter XII, On Instantaneous Shutters.

The book is amply illustrated with cuts and diagrams, and is well printed in clear type on good paper. It forms No. 37 of the well-known Scovill Photographic Series, and is uniform with the other numbers of this popular series in size of page, style of printing, binding, etc. It contains over a hundred pages of instructive matter. Price, post paid, in paper covers, $1; library edition, cloth bound, $1.50.

Representative American Yachts.—Photographed and published by Henry G. Peabody, of Boston.

Some time ago we spoke of this important photographic work, which Mr. Peabody has so successfully undertaken, describing Part 1 of the series, which contained ten portraits of the larger representative yachts. Part 2, which has just reached us, contains ten plates of the forty-footers, from excellent negatives. The yachts depicted are as follows: "Gossoon," "Ventura," "Moccasin," "Papoose," "Choctaw," "Mariquita," "Gorilla," "Helen," "Tomahawk," "Minerva." Descriptive letterpress is supplied by Mr. George A. Stewart, who is thoroughly well qualified to treat of this subject. A brief sketch is given of each yacht, when and by whom built, by whom owned, the regattas sailed and won, the dimensions, and racing record. The reproductions are made by the Boston Heliotype Company, and are certainly the finest specimens of the kind we have ever seen. The illustrations comprised in this notable work will, when the series is complete, be numbered from 1 to 100, accord-

ing to the size qualification of the yachts. The second part of the work contains only the first half of the forty-foot class, the illustrations being numbered from 51 to 60, the intervening numbers from 11 to 50 will be presented in subsequent parts, and will comprise the remainder of the schooner and the seventy, sixty, and forty-six foot sloops. This arrangement is necessary in order to represent in the forty-six foot class important yachts now building. The collection will therefore be very complete when finished. No yachtsman can afford to be without it. It is sold only by subscription, at $2.00 a part, and the subscriptions should be sent to Mr. Peabody, at 122 Boylston Street, or W. C. Cullen, his New York agent, at 62 William Street.

Adams & Co.'s Photographic Annual for 1891 is the latest year book aspirant for photographers' favor. Its main feature is excellent portraits of three editors of British photographic periodicals. The frontispiece is a silver print of Mr. W. H. Harrison, ex-editor of the *Photographic News;* then comes an Alpha print of Mr. J. Traill Taylor, editor of the *British Journal of Photography*, and ex-editor of THE PHOTOGRAPHIC TIMES. A bromide print shows the editor of *Photography*, Mr. Henry Sturmey. There are a number of articles of value by well known English photographic writers. The price is ninepence, post free.

From J. B. Davis, of Gardiner, Me., we have received some excellent cat pictures, one entitled "Looking Backward" being especially fine in pose. The cat has a position, which is at once suggestive of the title and characteristic of the feline. They are all well photographed.

From J. C. Higgins & Son, of Bath, N. Y., we have received some excellent photographs which reflect great credit on the skill of the photographers. One is especially interesting, being the launching of the ship "Shenandoah," of Bath, Me. The others are pleasing pictures of dogs and rabbits.

From John C. Clemons, manufacturer of plain salted paper, we have received some large prints, made on his excellent paper. They are certainly of great beauty. The subjects are mostly copies from paintings, and the plain mat surface of the print renders them in the most satisfactory manner. The tones are mostly of an agreeable brown.

Under the title of *Bulletin du Photo Club de Paris*, the leading amateur society of the French capital has begun the monthly issue of its proceedings. The first number is a double one, dated March 1st, and contains a complete list of members and abstracts of the meetings from January 1st. A very good plate, showing the entrance to one of the Exposition buildings, forms the frontispiece. The general get-up is much better than any of the other French journals which reach our exchange table.

Record of Photographic Patents.

451,027. Slide Shutter for Photographic Cameras. John R. Connon, Elora, Canada.

Never Asked to "Look Pleasant."—*Spiggit:* "The Chinese do not permit their women to be photographed."

Givvit: "No; they have quite an artistic sense. I have seen some Chinese women."—*Judge.*

Queries and Answers.

65 W. A. N. M. asks: (1) "Does cold weather have any effect on a dry plate? If so, in what manner?" He says that on December 25th he went about three miles to photograph a building and a group in freezing weather. He used a Carbutt "B" plate, giving an exposure of six seconds on the building, and on the group five seconds. Only a faint outline of both pictures appeared in the development. (2) "I thought it might be the plates in fault, it being the first I had used out of that box, so I took another from the box and exposed it at home along with a plate from a box which I knew was good, being the same kind of a plate, giving each plate five seconds. When I developed the plates both were good negatives, the new plate coming up somewhat slower than the other, that being the only difference. Now, can you explain to me the cause of my failure to get good negatives from my first exposures?" (3) "I use the Harvard formula pyro developer." The plates from the new box will not come up as well. (4) He says he bought some eikonogen which was in black crystals and made a dense black solution. (5) He uses the following formula:

Sulphite of soda	1 ounce.
Carbonate of potash	1 "
Eikonogen	½ "
Water	40 ounces.

(6) "Is 'The Photographic Times Almanac' out yet?"

65 *Answer.*—(1) According to some authorities, temperature does not influence the sensitiveness of a bromide of silver gelatine emulsion, with others differ. But the temperature of the developer is an important factor in the process. The main point to be considered in the case stated is the low altitude of the sun when the pictures were taken. In our experience a Carbutt "B" plate—which, by the way, is slow and not extra rapid, as you say—requires, with a "Waterbury" B lens stop $\frac{f}{8\,5}$, and, all other conditions being favorable, an exposure of from three to four seconds on June 21st, when the sun stands highest. On the 21st of December, all other conditions being alike, about twelve seconds would be the proper exposure. (See Lieut. Very's "Diagram of Comparative Exposures" in "The American Annual of Photography and Photographic Times Almanac" for 1891; page 364). (2) In the comparative experiments made at home you do not state the character of the subject photographed, the capacity of the lens, the stop, or the time of day at which the two pictures were taken; all of which particulars deserve consideration, as the above mentioned table explains. (3) Your pyro developer is correct; but that new plates do not develop as well with it as old ones is due to the fact that slower plates increase in sensitiveness by age—up to a certain point, of course. (4) Eikonogen sometimes comes in a brown crystalline powder; at other times in clear, yellow crystals, occasionally covered with a dark purplish powder. When in these conditions it dissolves with a green color of varied intensity. Recently it has been brought to this country in a perfectly white powder, which dissolves either colorless or with a slight yellow tinge. But when it is black and the solution is of the same color, refuse it. It is not fit to develop with. (5) The formula for eikonogen developer is first-class. You may dilute it, however, in the proportion of 1 : 4, with good results, or use it still weaker as occasion requires. (6) "The American Annual of Photography" for 1891 has been out since about December 15th last, and can be had from any of the dealers in photographic goods.

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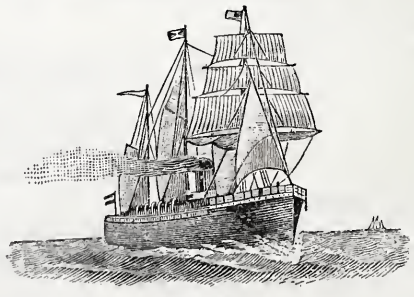
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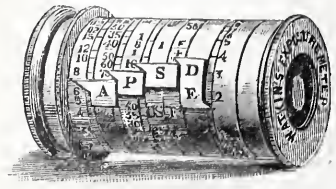
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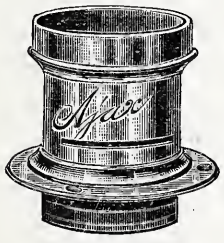
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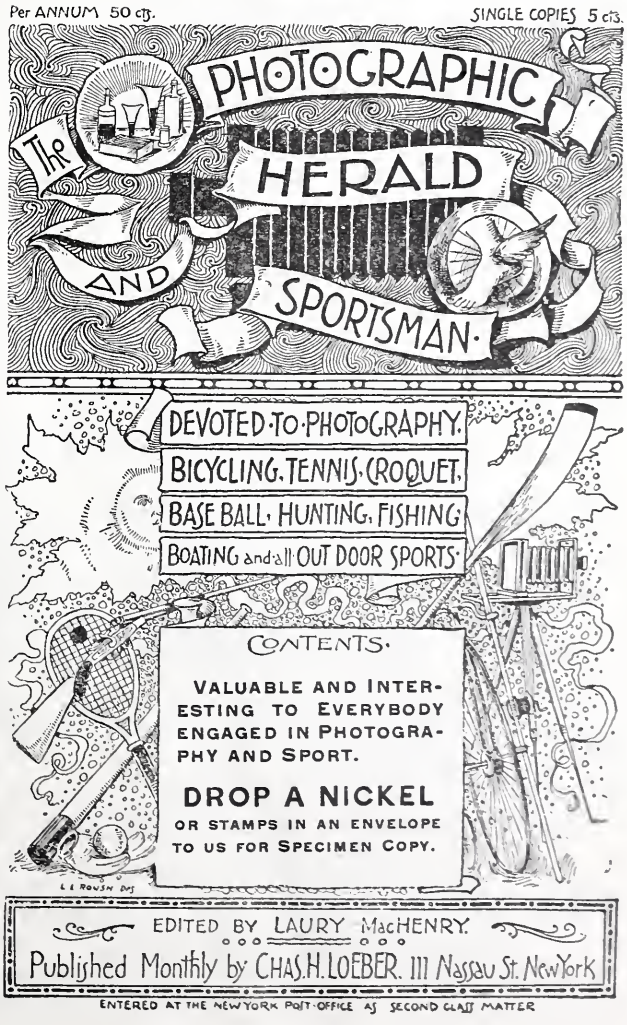
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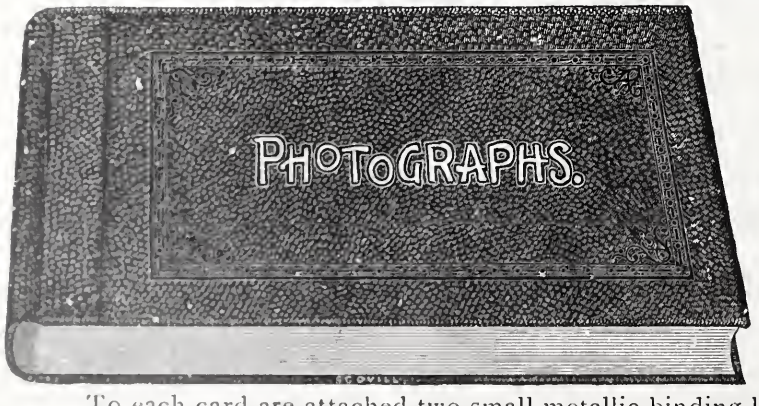
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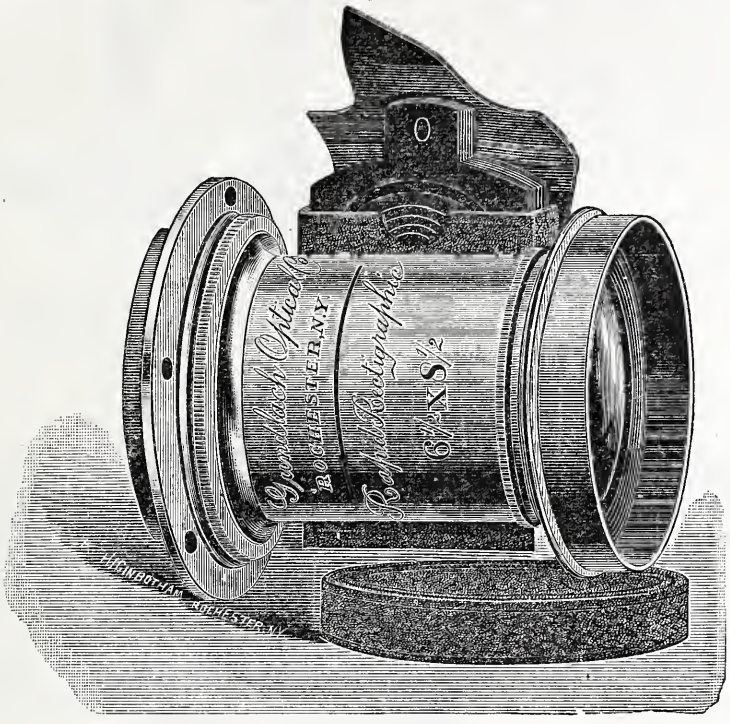
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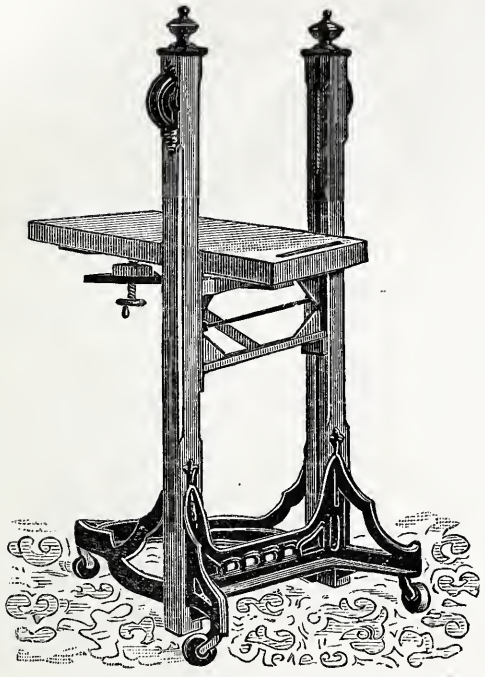
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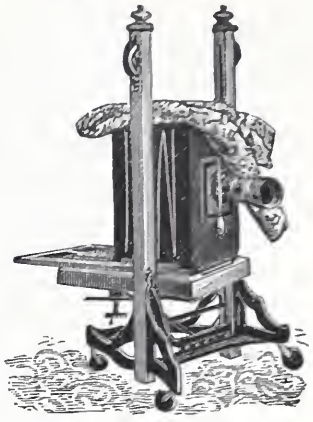
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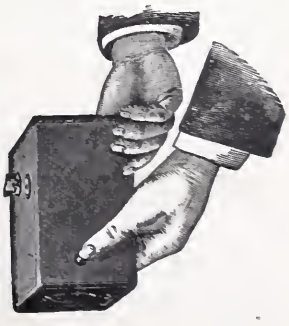
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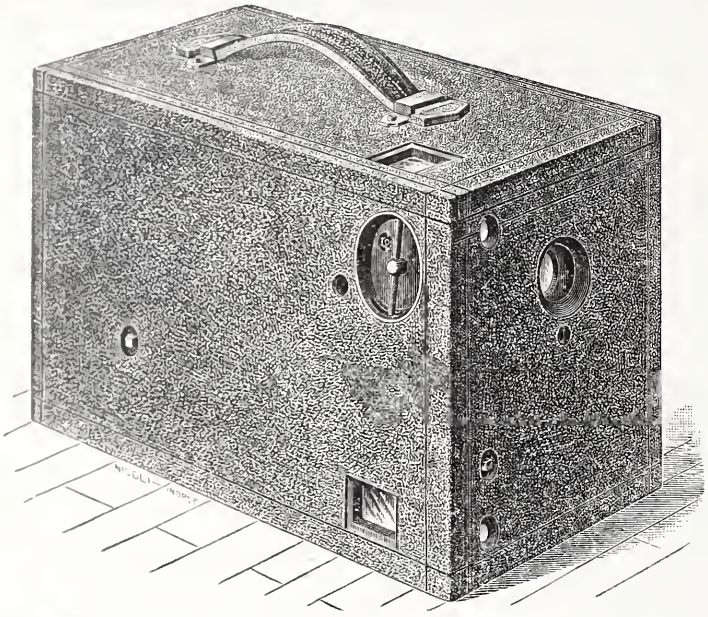
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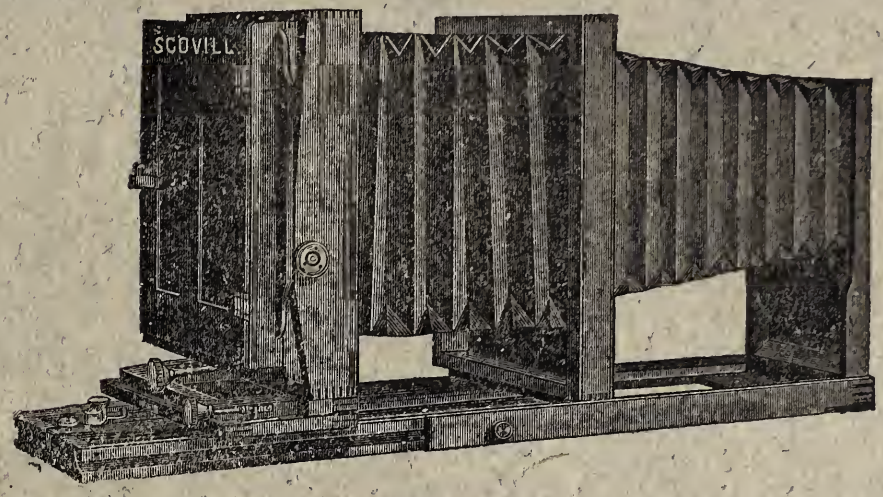
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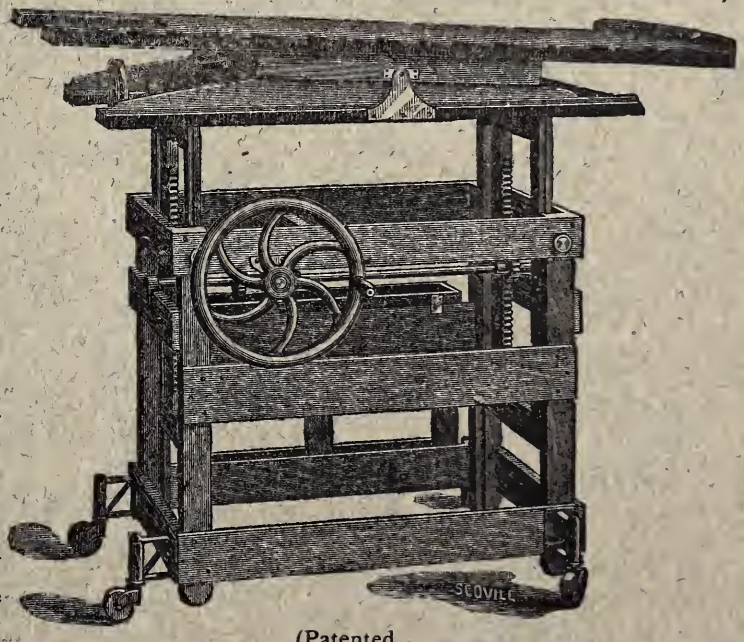
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8....	12x15	" " " 48 " do	72 00
9....	14x17	" " " 60 " do	76 00
10....	16x20	" " " 65 " do	88 00

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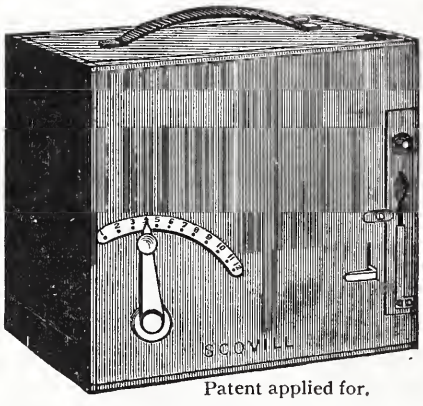
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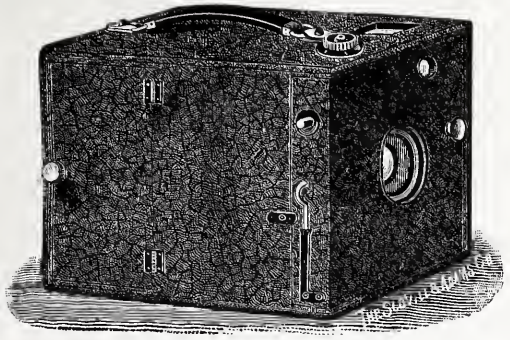
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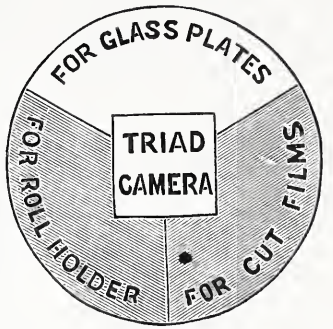
If he is going away for a summer vacation, or for a trip abroad, and expecting to make a large number of pictures, he will procure a roll holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed.

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IN THE MERRY MONTH OF MAY.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, MAY 15, 1891. No. 504.

"IN THE MERRY MONTH OF MAY."

THE merry month of May, praised by poets, recreated by artists, and the most beloved of months, has not been without its effect on the amateur photographer.

We have in the frontispiece to our magazine this week his idea of a fitting realization of the spirit animating nature at this time, to which the ancients, more widely poetic than we, gave "local habitation and a name."

We could scarcely demand a more pleasing goddess to animate the spring landscape than a young girl, herself in the Maytime of life, nor one on whom nature could be more willing to bestow her gift of leaf and flower.

The photographer is our friend Mr. Rudolph Eickemeyer, Jr., of Yonkers, New York, who has already treated our readers to more than one picture from his camera, and who will show them yet one or two more, it is to be hoped, in the not remote future.

MARK TWAIN'S KITTENS.

MR. EDWIN WILDMAN, editor of *The Echoes*, of Elmira, N. Y., sends us the following letter of Mr. Clemens (Mark Train), concerning his cats, which were presented to our readers in photogravure in our May 1st issue.

The letter was written to Mr. Wildman, and is as follows:

"There is nothing of continental or international interest to communicate about those cats. They had no history; they did not distinguish themselves in any way. They died early—on account of being overweighted with their names, it was thought: Sour Mash, Appollinaris, Zoroaster, and Blatherskite—names given them not in an unfriendly spirit, but merely to practice the children in large and difficult styles of pronunciation. It was a very happy idea—I mean, for the children.

"*Mark Twain.*"

FOR THE BEGINNER.

THE following are some of the errors that novices are likely to make in their efforts to master the photographic art. The first mistake likely to befall a new hand is in the selection of an outfit. Some are deluded into the purchase of a light, compact, shaky, unsteady camera and tripod. An outfit of this character cannot fail to worry a beginner by reason of its lack of stability. In such instruments the maker generally sacrifices every other good quality to the one idea of "compactness," or perhaps lightness. The writer has learned to his sorrow and cost that a pound or even two in extra weight is a very small matter compared with the expense and trouble of exposing and developing blurred, undefined, unsatisfactory negatives.

To those who are about to take up the practice of photography I would advise the purchase of a cheap, useful outfit, one made for use and not to catch the eye merely. I have found a 5 x 7 or 5 x 8 Waterbury Camera and lens to be all that a novice requires; for with such a camera and a good steady tripod very good work can be made. I have found it useful in taking landscapes, groups, processions, if not moving too fast, and even architecture, provided the buildings are not taken too near and the lines of the buildings not too close to the margin of the plate. This lens is very cheap, good and serviceable, but is not quite rectilinear, hence the precaution to keep the vertical lines of buildings as near the center of the plate as possible.

In the use of Waterbury lenses I would recommend not to expose toward the sun, as there will then likely be a ghost in the middle of the plate. Have the sun to the right or left, or behind, if possible. If this cannot be done then a shade over the lens is a good help; either a hat, or the slide of the holder held over the lens during exposure. For stereoscopic views, except it be street views, the Waterbury lenses cannot be beaten, as they work quick and sharp.

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To those who can afford a more expensive outfit I would recommend the following, which the writer has learned after having tried and worked with some five or six different sizes and makes of cameras. My idea is to obtain in one camera the quality of being able to do a general class of work with one instrument, and with that view I now have and can recommend to others a 6½ x 8½ broad front camera, with partition for stereos, sliding front, long bellows, extension bed, reversible back, and single swing. With such a camera I can use wide angle lenses of 2½ inches focus, or long focus lenses up to 14 inches. By the use of kits I can, with a pair of Waterbury or other lenses, make stereos or single pictures from 3¼ x 4¼ to 6½ x 8½. I can also do copying without any attachments or extensions. The above, mounted on a stiff tripod, is capable of doing all the work of any kind and character likely to be met with, hence it is an universal machine.

The tripod is a seemingly small affair, yet there are some points about it that are apt to be overlooked. I thought at one time that if some one would invent a set of legs that would fold up so as to go into the vest pocket, that I would be one of the first purchasers; but I have changed my opinion about this, and now one of the first requirements is a steady, stiff tripod, and one in which the legs can be shortened as occasion may require.

To those who wish a better lens than the Waterbury, I can recommend the Gundlach rectigraph, the Ross or Beck lens, and if the very best is desired my choice would be the Steinheil, of medium angle; any one of the above lenses will do good, square work, either out-door or copying, and cannot fail to give entire satisfaction.

The plate-holders are another source of failures; unless well made they are sure to give trouble. I have a decided preference for hard rubber slides. The paper ones are apt to stick, warp, and swell if allowed to be in a damp place. The consequence is that after exposing a plate the slide won't go home, and a light struck plate is the result. As a remedy for this, always, before loading the holders, see that they work free and smoothly; if they do not, ascertain the cause and rectify the same, and keep in a dry atmosphere.

The plate-holders should be numbered, and the slide marked on top on the wood part with a nick cut in the side marked "exposed." This will aid in loading properly, when the nick can easily be felt and put in toward the back or inside, and after exposure the nick will be outside, where it can be seen as well as easily felt.

It is a mistake to load the plate-holders in the dark. Procure a Peerless lantern, which will give plenty of safe light to enable one to see plainly what is being done.

It is a mistake to put the glass side out in charging the holders. Use a good lantern and this will be avoided.

So also it is a mistake to begin with fast plates and moving objects. First try still-life and slow plates; they are easier manipulated and better results may be expected.

It is a mistake to commence with a roll-holder and films before mastering plates. First become perfectly familiar with the exposure and development of plates. First, slow plates, then the more difficult ones. After this has been thoroughly learned then film photography may be studied.

It is a mistake to try and develop a plate when you have forgotten to uncap the lens or withdraw the slide. I have tried it often, and with all the developers at my command, but failed completely in every instance. The remedy is obvious.

Another mistake made sometimes is the making of two exposures of different objects on one plate. Composite pictures of this character have sometimes been amusing, but were utter failures. The remedy advised is to mark the slides as before mentioned and see that they are properly returned when an exposure is made.

Bad work often arises from allowing plate-holders to be kicked about in the dust, or to lie in the sun without any cover. Wrap them up in brown paper, or, better, oil cloth, with a string or rubber band around the package.

Failures are caused if the exposure is made when the plate-holder is not square up against the end of the camera; light leaks in and the plate is spoiled.

After the plate-holder has been placed in the camera, cover it with the focusing cloth, and withdraw the slide while under cover; expose, then return the slide and remove the cloth. This plan will prevent light striking in on the plates and spoiling them.

Putting in the slides at an angle after an exposure will often let light in on the plate and spoil it. Be sure and put the dark slide into the rabbet square and even, and there will be no trouble on that score.

It is a mistake for a beginner to think his own way is the best: it will lead to trouble; hence follow directions closely.

It is a bad plan to mix the developer after the plate has been put in the tray; prepare everything in advance; have the mixtures to be used in a convenient place; make the fixing bath, and keep

it away from the other chemicals. After this is done wash the hands and dry them. These precautions will in a measure prevent spotted, streaky negatives.

Neither is it a good plan to mix, dilute, or strengthen the developer in the tray with the plate in. First pour out the developer into the graduate, and then make the necessary changes; then pour it back on the plate. This method will insure an even development.

Always use plenty of developer to cover well the plate, and keep it moving in the tray by an easy rocking motion.

In pouring the developer into the plate elevate the tray at one end a little and flow the liquid quickly at that end, but not so as to let it fall on one spot on the plate, but with a sweeping motion, and lower the tray at the same time to a level position; then rock gently until the development is finished.

A good washing is necessary after development.

Errors are made in hurrying the fixing process. Use an acid bath and give plenty of time for the bath to do its work—say ten minutes after the negative appears to be clear.

Wash well after fixing in six or eight changes of water, then for three hours in running water; then put them in a drying rack to dry spontaneously.

Beginners should purchase "The Photographic Instructor" and follow its teachings to the letter. They will save money by so doing, and may derive both pleasure and profit from the practice of photography.

T. J. Bray.

The May Fourth Joint Annual Exhibition.—The time for receiving exhibits closed on May 11th. There will be a large number of foreign exhibitors, among whom may be mentioned H. P. Robinson, J. P. Gibson, Frank M. Sutcliff, Mr and Mrs. W. J. Anchorn, A. R. Dresser, Harry Tolley, Richard Keene, J. H. Harvey, of East Melbourne, Australia; Harry Symonds and Michel Ameschot, of Amsterdam, Holland. Many of these exhibitors have adopted the mat surface platinotype paper in place of albumen, so that altogether the new printing processes will have an excellent display. Much interest is manifested in the exhibition by photographers at home, among the most noteworthy views will be some by W. H. Jackson, of Denver, Col., and by Alfred Stieglitz, of New York.

The exhibition opens at the Fifth Avenue Art Galleries, 366 Fifth Avenue, near 35th Street, Monday night, May 25th, with a reception and private view by members and their friends, and will be continued thereafter for two weeks, closing Saturday evening, June 6th. There will be four lantern slide exhibitions each week.

Season tickets costing $1 will secure admission to all of the exhibitions during this time. Single admission is to be 25 cents.

Quite a handsome and complete catalogue is being gotten up which will contain illustrations of a few of the prominent pictures. A new departure will be the award of twenty-five silver medals in case the judges find that number necessary. Heretofore only diplomas have been awarded. It should be mentioned that the exhibition is held specially under the management of the Society of Amateur Photographers, through its Committee of arrangements: F. C. Beach, A. L. Simpson and C. C. Roumage. The judges are Thomas Moran, Will H. Low and Edward Bierstadt.

In addition to the photographs there will be a small display of strictly new apparatus, and a trial of electric light stereopticons.

The exhibition is likely to attract a large attendance; it will contain several new features well worth seeing. The galleries are illuminated throughout with the incandescent electric light, and are excellently located.

THE RISE AND FALL OF THE DAGUERREOTYPE.

(As Seen by a Country "Operator.")

IV.

The mercury bath consisted of an iron vessel in form of a hopper, a little larger at the top than the largest plate, and a little deeper than the length. A rod from the side of this to the side of a circular base supported it directly over the latter, on which stood a small spirit lamp with a flame-regulating tube. The bottom of the vessel was formed into a small cup in which was placed about an ounce of pure mercury, which was frequently filtered through a cone of clean paper perforated at the apex with a needle, through which fine aperture the liquid metal ran, leaving dust and dross behind. The cup containing this was kept about blood-warm by a tiny flame during working hours, but when a plate had been exposed in the camera the plate holder was taken to the mercury bath and placed, face down, over the top, the slide drawn and the flame of the lamp increased a little. This was usually done in what was then called the dark room, but the light needed only to be weak; the plate could be safely developed in a place distant from a window and but little screened from the light. A thermometer was furnished with the mercury bath, but was almost

always broken in a short time, and of course but little used, the hand being a handier and quite as reliable a test. The temperature was raised, not too rapidly, to about 150 deg. Fahr. The operator soon learned to judge by the sense of touch when the vessel was hot enough, and could then light a match, and raising the plate a little, see whether it was fully developed or not. The operation was very simple and admitted of little variation—not even as much as the development of a wet plate. It did not appear to consist in the reduction of the silver from the haloid impressed with the light as in the modern dry plate, and was certainly unlike the manner in which the image is formed on the wet plate, which chiefly consists of silver derived from the free nitrate and deposited on the foundation traced by the actinic rays. The silver plate, covered with a coating of iodo-bromide of silver and not exposed to the light, was impervious to the vapor of the mercury, but after it had been impressed with the image of the camera, the molecules of the sensitive coating were so changed as to allow the evaporated mercurial atoms to pass between them to the plate beneath in obedience to the affinity of the two metals for each other. When we think of it, all this is wonderful. We are led to ask, How does the image in the camera affect this coating so that without any visible change it does open its doors to the rising particles which otherwise would knock in vain for admittance? Where the light was too strong, as from a broad white shirt front, for instance the image was often lost by solarization; that is, so much mercury united with the silver in that space as to produce a flat dead blank without detail. This defect was sometimes remedied by using a false front of light nankeen.

The plate, after being taken from over the mercury, could be shown to the sitter, much as a chemical proof can now be shown, but with much greater precaution, lest it should be marred in the slightest degree. If not satisfactory it was set aside to be rescoured and repolished, and a new plate taken for another sitting. It was customary to have on hand a supply of plates ready for the last short buffing which it was necessary to give them the last thing before coating, not only to remove any dust but also any effect the atmosphere may have produced upon them while waiting to be used. If portraits were to be taken the last buffing was across and not lengthwise of the face.

When the likeness was found to be worthy of approval, it was fixed by immersing it in a solution of hypo and it was quite as readily seen when the fixing was completed as it is when that of a negative is done. It was then washed with clean water, when it was ready for gilding.

The gilding solution was made as follows: Fifteen grains of chloride of gold were dissolved in 16 fluidounces of pure water. In an equal quantity of water 55 grains of hyposulphite of sodium were dissolved, and to this was added, a little at a time, with frequent stirring, the gold solution. The whole became colorless in a short time. The edges of the plate having been bent up before fixing, it was held at one corner by a pair of pliers in a horizontal position and covered (while wet from the washing) with the gilding solution which was then uniformly heated by passing underneath it the flame of a spirit lamp. Small bubbles caused by the heat soon covered the surface of the plate and the tone of the picture visibly improved, the high lights became more brilliant, the shadows deeper. As soon as the bubbles disappeared the heat was withdrawn. After waiting a moment the solution was thrown off and the plate thoroughly washed and then dried over the lamp.

Then, as now, the most beautiful result was not quite satisfactory. But there was one great advantage possessed by the daguerreotype: the wrinkles and characteristic lines could not be obliterated by the retoucher's pencil. The mouth could not be shortened, the hollows of the checks filled up, the nose reduced, eyebrows retrenched, the old face made to look young, nor in fact any of the abominable defacements and falsifyings practiced, which are now so common, and which I cannot help thinking have much to do with cheapening and demoralizing the art of photography.

A perfect daguerreotype needed no artificial aid to its beauty, but it was customary, and usually required, to give a little color to the lips and cheeks as well as to touch the rings and other jewelry with gold, which, though not strictly in good taste, was quite harmless, as it could be easily removed at any time if so desired.

Probably no picture ever made was more lasting than this, when properly finished. I have many which have been made more than forty years that are as bright and perfect as when first made. But they cannot be long kept exposed to the action of the air, this being charged with impurities by which the surface of the plates are susceptible of discoloration. It was therefore necessary to protect them; and for this purpose a supply of white plate glass cut to the exact sizes of the silver plates used was kept on hand, with corresponding mats, preservers and cases.

To put up the finished picture the mat and glass were placed over it and the three bound together

with strong adhesive paper which secured the edges and lapped over on to the back. This was followed with the metallic preserver, which framed the glass in front with a neat border and was wide enough to bend down also on the back and so form a protection to the sealing paper. Finally, all was pressed into the case, when the work was ready for delivery.

Experience has proved several interesting facts in relation to daguerreotypes. One of these is, that neither light nor age appears to have any injurious effect upon them. I have some very old ones that were hung outdoors on the south side of a building for years, and which are still in a perfect state of preservation, apparently unchanged. It is a curious fact that most of these in my possession which were put up in contact with brass mats have become much discolored under the mats, the discoloration spreading inwards upon the picture to a greater or less distance. Some with paper mats have been similarly affected, while others have escaped. The inference from all my observations has been that if protected from dampness and the sulphurous gases which pervade the atmosphere, a properly finished picture of this kind is imperishable. Those that have lasted forty or fifty years unchanged are, or seem to be, in themselves reasonable proofs that they may last a thousand. Even those which have become much tarnished may be quickly restored to their original brilliancy by immersing them in a hot solution of cyanide of potassium, a treatment heroic enough to speedily wipe out almost any other species of the photographer's art. If any should wish to restore an old daguerreotype by this process, he should clean off all the paper from the back, and be careful to use cyanide that is not partly decomposed, as shown by an ammoniacal smell (good commercial cyanide which is dry and solid is suitable); above all it must not have been used for fixing, lest the picture be spoiled by a scum of silver deposited from the solution. Dissolve about half an ounce of cyanide in a pint of water, and heat in a porcelain evaporating dish. Immerse the plate, face up, move the dish, continuing the heat until the color disappears, then remove the plate and wash it thoroughly under the tap. It can be dried by leaning it cornerwise and nearly upright in the top of a graduate, or in the old way by holding it at the corner with a pair of pliers, and heating it from the top downwards.

W. H. Sherman.

(*To be continued.*)

THE TONING OF PHOTOGRAPHS CONSIDERED CHEMICALLY, HISTORICALLY, AND GENERALLY.

Chapter VI.

Alkaline Toning (Continued); the Phosphate Bath, and Lime Baths.

The Phosphate Toning Bath of Maxwell Lyte (1859).—In a communication* to the Photographic Society of France, Mr. Maxwell Lyte (a well-known English amateur then residing in France) gave the following instructions for toning prints:

"Overprint a little. Wash, first in plain, and then in salt water for ten minutes. Make up the following toning bath:

Original Phosphate Bath of 1859.

Chloride of gold	15 grains
Phosphate of soda (the purified tri-basic phosphate of commerce)	300 grains
Distilled water	1¼ pints

"This bath ought to be completely neutral, or, at all events, rather alkaline than acid."

Here, again, we should consider this bath as too strong in gold. The "phosphate bath" now generally used is made up as follows:

Modern Phosphate Bath.

Chloride of gold	1 grain
Phosphate of soda	20 grains
Distilled water	8 ounces

The tones given by this bath are of a rich purple; but the toning should be carried slightly beyond this, or until the prints are of a full violet or violet-black hue, as they "go back" somewhat during the subsequent processes of fixing and washing.

This phosphate toning bath will keep for some little time before using, and indeed is better if made up an hour before it is required; but it cannot be used a second time, so that no more should be mixed than is required. As in all toning baths, the best plan is to dissolve the soda in the water, and *add the gold last of all.* The bath should be quite colorless before it is used; but it ought to lose its yellow hue (caused by the addition of the gold salt) in a few minutes.

It will be noticed that Maxwell Lyte recommended bathing the prints in salt water before placing them in the phosphate bath. This practice is not now, however, generally followed. Indeed, Abney recommends that with this "toner," a little free silver nitrate be left in the print. It is usually enough to rinse the prints in three changes of water—rapidly in the first one, and allowing two or three minutes only in each of the others—

* Reprinted in *Photographic News* for March 4, 1859, p. 301.

to have the prints in the best possible condition for toning in this phosphate bath.

Cause of "Measles" in Silver Prints.—Sometimes the prints, after they have been toned and fixed, show a number of small white and red specks all over their surface, producing what professional printers have termed "mealiness" or "measliness" in the prints. The cause of this is that little or no free nitrate of silver has been left in the sensitized paper. Perhaps the sensitizing bath was too weak in silver; or the paper may have been washed after sensitizing, in order to make it keep better. When such paper is exposed to light (as it must be during printing) the silver chloride is decomposed with black silver sub-chloride and chlorine:

$$2AgCl = Ag_2Cl + Cl$$

Silver chloride *produces* silver sub-chloride *and* chlorine.

The free chlorine attacks the albuminate of silver, and combines with some of its silver to form little spots of fresh silver chloride, which (being then acted on by light) is blackened in its turn, but to a slightly different tint. It is these spots or specks which produce the "measles."

The best remedy for measles is to *fume* the paper for ten minutes before printing. This is usually done by exposing the paper in a closed box having a perforated false bottom (underneath which is a saucer containing a little strong ammonia) to the fumes or vapor of ammonia; or the *pads* of the printing-frame may be fumed instead of the paper. The ammonia then combines with the chlorine as fast as the latter is liberated, and ammonium chloride is formed, which is a quite harmless substance:

$$NH_3 + Cl = NH_4Cl$$

Ammonia *and* chlorine *produce* ammonium chloride.

Toning with Salts of Lime.—Three of the salts of lime have been and are commonly employed in the processes of toning.

The carbonate of lime ($CaCO_3$) is usually employed in the form of powdered or "precipitated" chalk to neutralize the hydrochloric acid which is invariably present in commercial chloride of gold.

The true "chloride of lime," or calcium chloride ($CaCl_2$), is employed in certain toning baths.

Commercial "chloride of lime," or chlorinetted lime (often called "bleaching powder," and also much used for disinfecting purposes), is a *mixture* of calcium chloride ($CaCl_2$), and calcium hypochlorite ($CaCl_2O$).

Le Gray Introduces the "Chloride of Lime" Toning Bath.—Gustave Le Gray, the famous French photographer of forty years ago, was a man not unwilling to recognize improvements—even in his own discoveries. His introduction of acid chloride of gold as a toning bath about 1850 having been objected to on account of the great amount of over-printing necessary, and Waterhouse and Hardwich having shown in England (1855–8) that an *alkaline* solution of gold was preferable, Le Gray announced to the French Photographic Society early in 1859 that ordinary bleaching powder (the commercial "chloride of lime") added to a solution of chloride of gold, made a toning bath far superior to his former acid bath. His formula* was:

Distilled water	1,000 parts
Commercial chloride of lime	1 part
Chloride of gold	1 part
Chloride of sodium	1 part

This bath tones slowly but regularly, and gives black tones.

Sutton's Lime Bath.—In Sutton's pamphlet on "Positive Printing" (1863) he writes: "The best toning bath, and that which I most strongly recommend, is a solution of a double salt of gold, called CALCIO-CHLORIDE, which consists of a combination of chloride of gold with chloride of calcium, rendered slightly alkaline by an excess of chloride of lime. This solution is as limpid and colorless as water, does not become decomposed by keeping, and is always ready for use."

Lime Bath with Chalk.—Shake up 40 grains of powdered chalk with 1 pint of *hot* distilled water. Add 2 grains of chloride of lime, and shake again. Lastly, add 2 grains of chloride of gold. Shake a third time and allow to stand till cool (65 deg. Fahr.); the bath is then ready for use, though it will work much better after keeping for a day. This bath gives black tones with good negatives, and paper which is not too old.

A Modern Lime Bath.—Make up three stock solutions: (A) 15 grains of gold chloride in 7½ ounces of water: (B) ½ pound of slaked lime (calcium hydrate, CaH_2O_2) in a quart of water; shake well and allow to stand till the excess of lime has sunk to the bottom; (C) 1 ounce of dry calcium chloride dissolved in 1 quart of water. To make up the toning bath, take ½ ounce of the chloride of gold solution and shake it up in 3 ounces of water; add to this the (B) solution (lime-water) until the color of a bit of red litmus paper placed in it is just changed to blue; then add ½ ounce of the (C) solution, shake well, and the bath is ready for use.

W. Jerome Harrison.

(*To be continued.*)

* Reprinted from the French *Bulletin* in Sutton's Photographic Notes for 1859, pp. 41, 106.

MOONLIGHT PHOTOGRAPHY.

A BRIEF note in regard to moonlight photography which appeared in a recent issue of THE TIMES reminded me of my own experience in that line seven or eight years ago. Perhaps it may be of interest to some others.

I believe I had heard of some one trying to take a picture by the light of the moon, but had read of only one such instance.

I had just started in the business then, and photography was a pastime to me instead of an occupation—so I was ready for any experiment. I used a half size Voightlander portrait lens, and selected for a subject the house of our nearest neighbor, some two hundred feet distant. At that distance I secured a tolerably good focus on the house with the lens wide open, although the near trees and distant objects were considerably out of focus. We did not have as rapid plates then as are made now. I made an estimate of the exposure likely to be required, based on the comparative brightness of sun and moonlight which I had learned in the study of astronomy, and strange to say, my first plate was correctly timed.

Any photographer can easily see that a portrait lens wide open would work with extreme rapidity in outdoor work in strong sunlight, but that plate was exposed about three hours, in the light of a full moon in a cloudless sky. There were lights burning in the house, which showed plainly in the picture. The exposure was commenced about nine o'clock P.M., and continued until midnight, so there could have been no daylight on the scene. I think the two sides of the house that were visible in the picture were in the direct light nearly all the time; of course, the shadows shifted some—as the moon traveled along its path—which gave a soft effect, no sharp edges to the shadows.

Several young people spent a very pleasant evening, promenading before the house and sitting out among the trees, and one young lady, dressed in white, stopped long enough in one place to make an impression easily seen.

The greatest surprise to us in the result was the very near resemblance to a daylight picture, the soft shadows being the only difference we could detect. Something of a moonlight effect was secured by printing the whole rather dark, and the sky much darker.

I made one or two other attempts, but none were more successful than this.

I should like very much to know if any one ever tried it with wet collodion plates, and should be pleased to hear from such through THE TIMES.

E. B. Luce.

PHOTOGRAPHY AS IT WAS AND IS.

(*Continued from page 227 and concluded*)

Sir John Herschel, the eminent astronomer and philosopher, actually succeeded in procuring upon paper impregnated with the colored juice of flowers a faint colored image of the solar spectrum. He also stated that he had specimens of paper long kept which gave a much better representation of the spectrum in its natural colors than he had before obtained. There is no doubt that Herschel was the first to discover the method of producing natural colors, about 1839 or 1840. It must not be forgotten that to his experiments we owe the introduction of hypersulphite of soda as a fixing agent, and he also first suggested glass plates for heliographic use.

Sir Robert Hunt experimented very much and obtained in many instances colored pictures of the spectral rays, dark upon a bright ground. His paper in the *Philosophical Magazine* for April, 1840, was entitled "Experiments and Observations on Light which has Permeated Colored Media," and in it he described some curious results on some of his photographs prepared with hydriodic salts exposed to luminous influence, with colored fluids superimposed. The violet, blue, green, and red rays produced not their natural but complementary colors. Some pieces of paper which he prepared with bichromate of potash and a very weak solution of nitrate of soda were under colored glass for ten days, in a window having a southern aspect, and gave a tinting of blue, green, and red.

M. Edmond Becquerel experimented in 1849–50, and succeeded in producing on metallic plates the colors of the spectrum, and copied some colored prints. His process was as follows: Into a jar of muriatic acid, diluted with from 1 to 2 parts of water, he placed a silver plate, having previously connected it with a positive pole of a galvanic battery, the negative of it terminated by a strip of platinum. The silver and platinum were kept about one inch apart until the former became coated with the nascent chlorine to a violet hue. It was then rinsed and dried and exposed to the colored rays. After an exposure of from one to two days a colored image was formed. He rarely obtained more than one or two colors at once. They were not brilliant and always evanescent.

In 1851 a nephew of Daguerre's partner, N. Niepce de St. Victor, published to the world that he was the discoverer of heliochromy, and that he could, by his process, copy colors from nature on silver plates. I am not aware of his formula, but he exhibited some pictures at the Crystal Palace in 1852, and although they were in a dark place, they had nearly faded out when I saw them. In 1856 I paid a visit to Dr. Diamond, of Surrey, England. He was then experimenting perseveringly with various formulas tending to color photography. He showed me the only good picture I have ever seen made with a camera and lens in colors. It was a view of an old-fashioned, two-story frame clap-boarded house, with moss and lichens in many places over the doors and windows. The picture was partly colored, the lichens showing their yellow and gray markings, and the house of a dark brown color. It was very pretty, but the doctor said it was taken while he was experimenting, and he could not account for it. It was really a sun picture in colors, and the only genuine one I have ever seen, at least such is my opinion. About the same time Mr. L. L. Hill, a traveling daguerreotypist, announced that he had at last discovered the grand secret

of heliochromy, and could take landscapes and portraits in their natural colors. This news created great excitement all over the scientific world, especially among those who were professed daguerreotypists. In conversation with Professor S. B. Morse on the subject, he assured me that he had made a visit to West Kill, the residence of Mr. Hill, and had seen the pictures said to be taken by his newly discovered process. According to his account they were wonderful productions of colored daguerreotyyes of living subjects, as well as exact copies of colored paintings. Although the professor did not see the pictures made, he believed them to be genuine. Many distinguished men visited Mr. Hill, who was always ready to show his pictures, but I do not know of one practical man who ever saw him make one.

In November the same year a committee of the New York State Daguerrean Society paid Mr. Hill a visit, but he refused even to show them his pictures or give them any satisfaction in regard to his secret which was demanded as a right. On the return of the committee to New York a report was published signed by the members, stating that Mr. Hill had "not only deluded himself, but the whole history of his discovery was an unmitigated delusion." The committee, however, rather contradictorily charged Mr Hill with making profits of his alleged pretense—a charge which is plain would rather militate against the admission of his delusion. They averred, in fact, that from the sale of his books and tuition of pupils attracted by the fame of his discovery he realized a handsome income, and this was the real object of Mr. Hill's announcement.

Later, in company with two other gentlemen, I made a visit to West Kill to Mr. Hill. We saw and admired his pictures, but he would give us no satisfaction as to how they were made, although we offered to pay him handsomely for his trouble. We were obliged to depart without information of any kind; in fact, he positively refused to do anything more than show his pictures. We departed much chagrined after traveling 160 miles for nothing. We had strong surmises that there was really nothing in the process, and time proves we were correct. In 1856 he published a book giving partly his life history and a few formulas and many long letters extolling him on his great discovery. His formulas are very curious and complicated, but those who have tried them never succeeded in taking a picture even with the greatest care and accuracy. Whenever a failure occurred he always made the excuse that "the chemicals were impure, or your manipulation was not careful enough." Several friends and myself tried his formulas, keeping to the very letter, but produced nothing.

Thus it will be seen that photographs in colors have been the great desiderata, and have occupied the mind of every sincere worker more or less. Yet it has ever escaped perfect realization, even by such men as Sir John Herschel, the first to photograph spectral colors, and his successor, Sir Robert Hunt. That it can be done is evident from Dr. Diamond's accidental color picture, but as yet the full secret has eluded the grasp of the most patient investigator. I do not doubt we are on the eve of some revelation respecting it, especially as much more study has been lately given to the properties of light, a subject so vast, yet still wherein there are startling discoveries every year. Professor Lippmann has made a step in advance in the right direction, and as far as he has made known his formula it is more simple than any of those of his predecessors. It remains to be seen whether any progress can be made so as to apply it to the arts and sciences. Should he succeed in perfecting this branch, it would be one of the greatest discoveries of the age. There would be "millions in it," for it would revolutionize photography.

Nicolas Pike,

In the Scientific American.

Notes and News.

Thanks.—"I wish THE TIMES further success, and am pleased to see that the standard is being maintained."—*J. H. Harvey, Secretary Amateur Photographic Association of Victoria, Melbourne, Australia.*

Wanted.—A copy of THE PHOTOGRAPHIC TIMES for September 26, 1890. By R. Wynyard Bellhouse, Secretary of the Syracuse Camera Club, 41 White Memorial Building, Syracuse, N. Y.

Queen Victoria's favorite dogs, about forty in number, are being photographed at the royal kennels near Windsor Castle. The animals consist of Pomeranians, collies, fox terriers and dachshunds.

John O. Jackson's photographic gallery, at Franklin, Pa., was destroyed by fire, Friday, April 29th. 2,500 negatives were destroyed, and property to the amount of $3,000, on which there was but $1,000 insurance. The loss of the negatives is greatly mourned by all the townspeople of Franklin, and Mr. Jackson has the profound sympathy of all.

An International Photographic Exhibition, under the auspices of the Glasgow and West of Scotland Amateur Photographic Association, is to be held in the Institute of the Fine Arts, Glasgow, September, 1891. The Exhibition will open Tuesday, the first of September, and close on Saturday, the 3d of October. There will be frequent lantern exhibitions and musical promenades. Full particulars, entry blanks, etc., may be obtained by addressing Mr. Wm. Goodwin, Hon. Sec'y, 3 Lynedoch Street, Glasgow.

A Good Thing.—The publishers of the "American Annual of Photography and Photographic Times Almanac" did a good thing when they got out their "Cyclopedia Index" to the Annual for 1891. There is so much valuable information within the covers of these interesting volumes that such an index for the entire series to date would be most useful. The "Index" is of uniform size with the Annual, and will be found a help not alone to the readers of the Annual.—*The Philadelphia Public Ledger.*

The American Photographic Conference.—We notice in the *Beacon* quite a correspondence anent the proposed plan of establishing a purchasing agency, whereby the members can gain the advantages of trade discounts. We quite agree with our esteemed contemporary that such a scheme would be antagonistic to the true spirit of the conference and doubtless rouse much antagonism among the

various manufacturers and dealers in photographic supplies. This would be undesirable, to say the least. Speaking as a member of the council, we will say that the plan is by no means a reality, but merely a suggestion by the president. The *Beacon* may rest assured that at least one member of the council will oppose the projected purchasing agency.—*C. R. Pancoast, in the Connecticut Guardsman.*

The California Camera Club followed the President's boat, during the recent celebrations in San Francisco, on the occasion of President Harrison's visit to that city, in a chartered tug-boat, and succeeded in obtaining many interesting photographs of the President's vessel.

"The County Fair."—In reply to several inquires as to the original of the picture, which, with others, embellished the 1891 issue of the "American Annual of Photography," we quote from a letter recently received from Mr. J. P. Davis, of Gardiner, Me., who made the negative.

"It really was no 'Fair' at all, but simply a horse race held at Presque Isle, Aroostook County, Me., August 21, 1889. It was on one of a two days' reunion of a regiment of the G. A. R. The tents on the right of the middle distance are the G. A. R. tents. A great many people have an idea that Aroostook County is a howling wilderness, which, in fact a great part of it is, but I think this picture shows that a good crowd can be gathered in at a horse race even there. The picture was made with an Ortho lens, purchased at Horgan, Robey & Co's., Boston."

A Grand Duke as a Photographer.—Everybody is talking about the poor Grand Duke Michael, and the rumor that his exile will lead to his taking up his abode by the Lake of Como, where he will open a photographic gallery and put to practical use the skill he acquired as an amateur. The reason for this is to be traced, naturally, to his recent marriage, and the consequent displeasure of the Czar, which has resulted in a far more serious manner than the poor Grand Duke ever imagined was possible. His financial position may be best described by the word uncertain, for such means as he possessed were derived from his estate in Russia, and, being subject to the feudal condition of military service, as his name has been struck from the roll of the Russian army, his income disappears. His private property having been also confiscated, his visible means of support require the use of a telescope to discern, and it is to repair these ravages, and in a belief that the ordinary individual will prefer to have his picture taken by a real live member of the aristocracy than by an ordinary artist that he is induced to follow this calling. Everybody who has a romantic touch about him is loud in his expressions of hope that the Grand Duke will make a success of his new profession, for he certainly has sacrificed a great deal for the sake of the woman he loves.

Since the Russian Grand Duke Michael has married the woman he loved he has lost his place at the Czar's court because his autocratic imperial father did not approve of his union with an obscure German princess. But Mike isn't discouraged. Rather than live on his wife's relatives or become a stage freak, he announces his purpose of going into the photographic art, with which he has some acquaintance. Good boy, Mike! Everybody will wish you well.—*Savannah News.*

W. Jerome Harrison has begun a series of articles in THE PHOTOGRAPHIC TIMES, upon the subject, "The Toning of Photographs Considered Chemically, Historically and Generally." That he begins with the toning of daguerreotypes shows that the matter will be exhaustively treated.—*The Philadelphia Public Ledger.*

Emerson's Last Sitting for His Picture.—Says a Boston photographer: "The last time that Emerson ever sat for his picture was just before his mind gave way. He came into the gallery one day with some relatives, who assisted him with his wraps and in making ready for the photographer. It was very difficult that day to make a picture of the great man that would suit the relatives who were with him. It wasn't because Emerson was fussy or nervous; he was, in fact, a most delightful sitter, and on this occasion his courtesy was no less marked than at other times. But when he directed his gaze steadily at the object which the artist selected the features relaxed very peculiarly, and the expression of the eyes and mouth was strongly irrational, if that word must be used in such a connection. The relatives, who were accustomed to his features and their expression, saw in the negatives what they couldn't see in the original of the picture. So they ordered that the negatives be not developed, but destroyed. And the visit was paid for but no photographs were ever delivered. It was noticed that as Emerson left the gallery that day his eyes were bent steadily on the floor, and he smiled continually. Very soon after the story of his mental trouble was published, but this story of the last sitting no one ever heard."

Pictures in Watches.—"I want you to make as pretty a picture as you can. Bring out the soft expression of the eyes and be very careful about the mouth."

A young Wall Street broker was giving these directions to a jeweler down town recently, and as he did so he laid his gold watch on the glass showcase.

The jeweler assured the young man that he would have a perfect likeness of the young lady made and laid the watch away in a drawer.

Turning to a reporter who was standing by he said: "Photographs in watches are becoming very popular. The gentleman who just left his order here wants the portrait of his intended wife placed in his timekeeper. The face of the young lady will be photographed directly on the inner case of the watch. During the past month we have taken more than five hundred photographs, and some very prominent persons are among them."

"What does it cost to put a picture in a watch?" asked the scribe.

"About $15. All the work is done by a French photographer, who makes a specialty of the work; and once a pretty face is placed in a watch by this method it will remain as long as the watch lasts. And another thing, the chances are that no matter how hard up the owner of the watch gets, he will not part with that watch."—*N. Y. Mail and Express.*

Little Elsie Leslie at Home.—I saw a photograph the other day of which there are only twelve copies in existence. It was a picture of Edwin Booth and Elsie Leslie, the child actress. The former is seated in a chair and Elsie is standing by the side of it, one arm over the back, the other hand clasped in that of Edwin Booth. Six of these

photographs were retained by Mr. Booth, and six were given to Mrs. Lyde, the mother of little Elsie. Mrs. Lyde also has possession of the negative. I never saw a finer portrait of the famous tragedian.—*Detroit News.*

"Photographic Optics."—A Review.—The following intelligent review of "Photographic Optics," by Professor W. K. Burton, is sent to us by Major McMurray, U. S. A., now stationed at Fort Wadsworth, New York Harbor:

"Photographic Optics," by Professor Burton, No. 37 of the Scovill Photographic Series,* supplies a distinct want in that direction.

Much of the matter has appeared in other forms, but this publication presents a concise and practical summary of the general subject. A little too concise, indeed, for intelligent amateurs and professionals who would have been glad to have from the same able pen more extended details of the method of construction of lenses most used; the meanings and application of the terms in common vogue: such as aplanatic, antaplanatic, triplets and triple combinations, etc. This would have been quite appropriate in such a work and need not have involved expression of opinion as to any particular maker's productions. Certainly a description of all the leading and important styles of objectives would have been very acceptable. The publishers have done well to add, in form of advertisements, cuts and descriptions in this line which greatly augment the value of the book.

The chapter on shutters would be helped by descriptions of characteristic types of shutters, with their *modus operandi* and optical coefficients. "Before," "Behind," and "Between the Lenses," and "Before the Plate" shutters, would have made good reading, and given many an amateur food for reflection.

The author's work is so well done that we are hungry for more of the same kind.

"Photographic Optics."—"A most useful pamphlet on the subject of photographic optics.—*The New York Press.*

"A very useful Text-book for professional and amateur photographers. * * * It fills a long felt want to photographers throughout the world."—*The Echoes, Elmira, N. Y.*

"Photographic Optics" is just the book needed by the amateur who would know his art; chapters vi and vii, when understood as they should be, will prove of infinite service; they make clear much that he, as well as his professional brother, should, but do not generally understand. —*Chas. Wager Hall.*

"Photographic Optics" is the title of an interesting and instructive addition to the Scovill Photographic Series, which has just been published. It is a practical text-book upon light, photographic lenses, swing back, spectroscopic photography, instantaneous shutters, view meters and finders, and other subjects connected with the transmission, refraction, and absorption of light. The subject is one of interest for those who wish to rise above the grade of mere shutter snappers.—*N. Y. Times.*

Advice on Special Points in Bromide Printing.—Potassium oxalate will not bear more of the iron salt than the quantity prescribed in the formula. When added in excess a yellow precipitate will deposit, which will cling closely to the surface and fiber of the paper, from which it is next to impossible to remove it. With the occurrence of the yellow precipitate the developing force of the solution is also very much diminished.

Alkaline oxalate tends to foggy and muddy prints, and when too acid the prints are harsh and chalky. Commercial potassium oxalate is always alkaline; when acidifying it, test with litmus paper; let acidity prevail but slightly.

The iron solution is acidified to prevent higher oxidation. When yellow, red or brown, it is not fit for developing purposes.

Bromides in the ferrous oxalate developer spoil the tone.

Submerge the print in the hypo solution, and although fixing takes place rapidly do not remove till its function is accomplished. Parts of the print, having escaped the

Never allow a current of water to fall directly upon the fixing agent, present a greenish-yellow color by reflected light, and a greenish-black by transmitted.

print. It weakens the film and results in blisters or frills.

Keep separate trays for developing and fixing, and prepare a fresh hypo bath for every printing day.

Yellow stains resisting the action of the clearing bath or the acid fixing bath come from too long-continued or forced development.

Spotting and retouching of bromide prints are done with Conti's crayon or a soft graphite pencil.

Introducing of clouds in a landscape, printing-in borders or ornaments, are done by blocking out or making up some portions of the negative and introducing others by separate printing in the same manner as on albumen paper.

Vignetting is done in the usual way, but printing must not be done in too close proximity to the light source, and allowance must be made in the exposure for the density of the vignetter intervening.—*From "Bromide Paper" and How to Use It. New York: The Scovill & Adams Co.*

Photographic Societies.

CASE SCHOOL CAMERA CLUB.

AT the meeting of The Case School Camera Club, Thursday, May 7th, Mr. Percy W. Cobb gave an interesting demonstration of toning albumen prints for the benefit of the beginners. He used the acetate of soda bath and obtained fine tones. The difference in toning of the ready sensitized—and some paper he sensitized was very apparent—being in favor of the latter. Discussion followed as to the respective merits of the different alkaline toning baths. Pictures obtained on the "outing" were also shown. Members have busied themselves lately in photographing the sparks of a Holtz electric machine with very good results.

Milton B. Punnett,
Corresponding Secretary.

* See editorial review in May 8th issue.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

MAY CALENDAR.

May 25th.—Opening of the Fourth Annual Joint Exhibition of the Boston Camera Club, Photographic Society of Philadelphia, and this Society, at the Fifth Avenue Art Gallery, near 34th Street.
" 25th.—Directors' Meeting
" 26th.—Joint Exhibition.
" 26th, 10 A.M.—Annual Meeting of the American Photographic Conference.
" 26th, 8 P.M.—Wallace Goold Levison, Esq., will deliver his lecture on *Instantaneous Photography* as an aid to *Science, History, and Art.*
" 27th.—Joint Exhibition.
" 28th, 10 A.M.—Amer. Photo. Conference. Reading of Papers.
"27th, 12.30 P.M.—Steamboat Excursion around the Harbor of New York, given jointly by the Brooklyn Academy of Photography and this Society to the delegates attending the Annual Meeting of the American Photographic Conference. Tickets can be had on application to the Secretary.
" 28th.—Joint Exhibition.
" 28th, 10 A.M.—Amer. Photo. Conference. Reading of Papers.
" 28th, 7 P.M.—Amer. Photo. Conference. Dinner.
29th.—Joint Exhibition. Evening, Exhibition of Slides by the Photographic Society of Philadelphia, and the Prize Slides.
" 30th.—Joint Exhibition. Evening, Exhibition of Slides.

JUNE CALENDAR.

June 1st.—Joint Exhibition.
" 2d.— " " In the evening, Exhibition of Slides.
" 3d.—Joint Exhibition. " " "
" 4th.— " " " " "
" 5th.— " " " " "
" 6th.— " " Closing Night.
" 8th.—Director's Meeting.
" 9th.—Regular Monthly Meeting of the Society.
" 22d.—Director's Meeting.
" 26th.—Lantern Slide Exhibition.

T. J. Burton,
Secretary.

The Editorial Table.

The Photographic Instructor, by W. I. Lincoln Adams and Professor Charles Ehrmann. Third Edition. New York: The Scovill & Adams Co.

The popular demand for this photographic instruction book has been so great that already two editions, amounting to 3,500 copies, have been sold, and a third edition of 1,200 copies has been required, as well as a large edition in Spanish. The book having been previously reviewed in these columns at some length, and, in its first editions being well known to most of our readers, it is unnecessary to speak of it in detail at this time. The present edition has been thoroughly revised and brought up to date, and considerable useful information has been added both to the appendix on the nature and uses of the various chemicals and substances employed in photographic practice, and to the various lessons which compose the body of the book. Especially have the chapters on stereoscopic photography, artificial light, and transparencies been enlarged. A new frontispiece has been given to the book—a Kurtz reproduction from an excellent negative of the Hall of Philosophy at Chautauqua. Many illustrative cuts of apparatus, diagrams, etc., have also been added to the book, and the portrait of Professor Ehrmann is retained. The price remains the same, in paper covers: $1.00; library edition (cloth bound), $1.50.

It is pleasant to have one's efforts appreciated, though, of course, no one who works with right motives strives principally for appreciation; but when a letter such as the following is received, it is certainly very encouraging to us and helpful:

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Your article in THE TIMES about albumen is especially good, and reminds me that for a long time I have wished the journals to print albumen processes, such as "Whipple's Honey," and especially "Edwards'," of England. I imagine they would be very interesting to all who love photography. Please print what you can about albumen.

Yours truly,
C. T. Stuart.

HARTFORD, May 4th, 1891.

It is our purpose to give more attention to this important subject in the future.

"The Practical Photographer," of London, is certainly an interprising periodical. It is a monthly. Tne annual subscription is only two shillings (50 cents), edited by that capable gentleman, H. Snowdan Ward, and published by Percy Lund & Co., of Bradford, England. The circulation is enormous for a photographic periodical of this class, reaching as high as 10,000 an issue. It contains frequent illustrations and well-written articles by the editor and others on subjects of practical importance to photographers. Our publishers have made arrangements by which they may receive subscriptions for this enterprising monthly in America.

The April issue of the *Practical Photographer* is one which American photographers especially will be interested in, as it contains a brief description of the leading American periodicals. Of THE PHOTOGRAPHIC TIMES it speaks as follows:

"Perhaps THE TIMES, as the only weekly, ought to have had the first place." [*Wilson's Photographic Magazine* as the oldest photographic publication in this country, was treated first of the American magazines in this article.] "But we know that its editor and proprietors will not begrudge Dr. Wilson the premier position, as the pioneer journalist. THE TIMES is the property of the Scovill & Adams Company, whose goods, and especially their books, are well known in England, and Mr. W. I. Lincoln Adams is the editor. THE TIMES has the largest page of any of the American magazines (about 12 inches by 9 inches) and has a photogravure frontispiece to every issue." Then follows an enumeration of the contents for the particular issue (February 27th) under consideration

The "Photo Journal" for April is at hand, with four very interesting plates in "photocallographie"—following the nomenclature determined on at the Congress of 1889. The subjects are: View at Ajaccio; group of sailors on the gunboat "Magenta;" view of the vessel "L'Italien" in the harbor of Toulon; and—quite a novelty at the present day—two stereoscopic flash-light pictures: one showing Mlle. Magnier, the actress, in her room at the theater; the other a view "behind the scenes" in another theater, with a group of "people." An entertaining article by M. Georges Pentat describes these views.

That the editor of the *Photo Journal* believes in the "stereoscopic revival" is shown by his offer of an arrangement called "Binacle Stéréoscopique"—a sort of simplified stereoscope—as a prize for new subscribers to his journal.

The *Revue Suisse de Photographie* seems to have dropped out the "Suisse" from its title. The issue for April has a beautiful photographure plate, "After the Avalanche," made by Thévoz & Cieg, from M. Odier's negative, also a typographic plate made on an isochromatic collodion emulsion plate by Albert, of Munich.

With the compliments of the Giles Company, lithographers, engravers and printers, at 32 West 13th Street, New York City, comes a beautiful panel calendar printed in colors by their well-known process. It contains in all six leaflets representing well-known characters of the stage. One page is devoted to the ballet, another to the grand opera; a third to the comic opera; a fourth to tragedy; the fifth, drama, and the sixth, comedy. The cover is printed in color on satin, and altogether we have a very beautiful souvenir.

Mr. Gutekunst's imperial panel portrait of the late P. T. Barnum is no exception to the success which he has maintained in his portrait series of eminent Americans. It is as good as any of its predecessors which is saying a great deal, for they could not be better. We gave our readers a sample of Mr. Gutekunst's portraiture in the phototype of Lawrence Barrett. We shall hope to include one or two more of this unrivalled series in the frontispiece illustrations to our magazine.

The Hand Book of Cornell University, by Frank C. Perkins, illustrated from photographs of the university buildings, lecture rooms, workshops, etc., is a handsome little volume. The negatives were for the most part made by the author himself, who is one of the most successful members of the Chautauqua School of Photography.

Record of Photographic Patents.

451,853. Magnesium Flash Light. Otto Doehn, Cleveland, O.

451,880. Photographic Shutter. Cullen C. Packard, Kalamazoo, Mich.

Queries and Answers.

66 E. H.—Can you tell me how carbonograph paper is made? What is the developer? What are the chemical changes in development? Why do the lines come purple instead of black, and what is to be done to make them black? Is this the paper that is sometimes used by photographers for carbon prints?

66 *Answer.*—The sample shown is evidently an iron print, as ascertained by chemical test, and is similar to the kallitypes repeatedly mentioned in these columns, but not a carbon print. Kallitype or similar paper is developed with nitrate of silver; tone and depth depend largely on the time of exposure and the concentration of the developer. Toning with acid gold chloride is admissible after thorough washing. The name Carbonograph is unknown to us.

67 W. GORDON writes: "Will you please inform me whether there are any reasons that would prevent a ferrotype bath from working satisfactorily for taking out-door views, the same being transported along the street in a buggy fitted up for the purpose. In other words, would the agitation of the bath caused by the movement of the buggy interfere with the action of the bath?

67 *Answer.*—A correctly compounded and well-filtered silver bath can be transported without injury to its working properties. Be careful not to expose the bath-dish holding the silver solution to high temperature while on transit. Heat is a great accelerator. A heated silver bath is liable to produce fog, and if the developer is of lower temperature, it will not flow evenly over the plate, causing streaks and a variety of marks.

68 CONDENSOR.—1. In reducing the density of overdeveloped lantern slides with red prussiate of potash and hypo the film becomes stained yellow. 2. Is there any way of removing the stain? 3. Do you know of another reducer that will not stain?

68 *Answer.*—1. One of the objections to the method. 2. Wash the plate well and leave it for about twenty minutes in an alum and citric acid bath. 3. Bellitski's method with potassium ferric oxalate, See page 171, PHOTOGRAPHIC TIMES, vol. xx.

69 FRANK L. M.—I want to buy a better lens than my old friend the Waterbury B, but am not decided between the Beck, the Instantané, and the Gundlach. Which do you advise me to take?

69 *Answer.*—If very rapid work is the object in view, take the Instantané, by all means. For precision, sharpness and depth there is no choice between it and the other two objectives.

70 PRINT AND TONE.—Some formulas for the combined toning and fixing bath recommend to soak unfixed albumen paper trimmings in the hypo before the gold is added. What is that for?

70 *Answer.*—The addition of chloride of silver accelerates toning, and may be used either in its ordinary state, precipitated from nitrate of silver with a soluble chloride, or in the shape above described. A hypo solution impregnated with chloride of silver will tone an albumen print without any gold, provided it is left in it long enough; but the tone is due to a sulphuration of the silver deposit, and the whites are of a yellowish tinge. Such prints are not permanent.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

W. I. LINCOLN ADAMS, Editor.

Issued every Friday.

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

"Franklinville, May 5, 1891.

"The Scovill & Adams Co.

"Gentlemen: I have one of your outfits, and instructions that you send are so simple that any one can understand them. I will compare the first picture that I made with any taken with an outfit costing twice the amount mine did.

"VIRGIL RAYDEN."

"WORKS AND GENERAL OFFICES OF
"IDE AND IDEAL ENGINES,
"SPRINGFIELD, January 14, 1891.

"THE SCOVILL & ADAMS CO.

"*Gentlemen:* We are in receipt of the sample holders. We thought the —— holders the best in the market, but yours are two notches better; *i. e.*, the spring to give correct focus, and the registering slides. * * *

"A. L. IDE & SON."

"SOPRIS, January 12, 1891.

"MESSRS. SCOVILL & ADAMS CO.

"*Gentlemen:* The 'C. C. C.' Outfit, 5x8, arrived a week ago. * * * We have taken a few negatives, and are delighted wiih the instrument, our results from the start having been good.

"Yours truly,
"DR. JOHN T. DAVISON."

CHICAGO, May 1, 1891.

I take pleasure in announcing to my friends and patrons that the business formerly known under the name of Gayton A. Douglass & Co., at 185 Wabash Avenue, will in future be conducted by Douglass & Shuey Company, nnd located in commodious and pleasant quarters at 111 State Street.

Your attention is called to the enclosed circular, and I would respectfully ask a continuance of your favors.

Yours truly,
GAYTON A. DOUGLASS.

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396 Broome Street, New York.

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PURE GERMAN MILLS' MAGNESIUM POWDER for Flash Lights.
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BARGAIN.—My nice little Studio must be sold immediately. $300. For particulars address R. S. IRISH, New London, Conn.

FOR SALE, and must be sold at once, a good equipped, etc., Gallery; good large rooms; fine light; between 12 and 15 towns from 1 to 10 miles; good paying business, oldest gallery in town, 31 years established; good variety of business in town; rent, $40 per year. Gentlemen, before buying elsewhere, please call and see this Gallery; it will pay you. C. J. KRATT, 291 Main Street, Athol Highlands, Mass.

WISSAHICKON SENSITIZED MAT PAPER.—Mat surface paper does not render fine details and delicate shading as sharply and clearly as albumen paper. But its weakness is its strength. For it tells the story of the picture more directly by not emphasizing unimportant details. When the charm of the picture lies in bold masses of light and shade, and requires a soft, broad treatment, our mat paper is in its glory. But even for delicate and intricate landscapes it has a beauty all its own. It is printed, toned and fixed like albumen paper. Readily gives tones from sepia to purple black. Brush and crayon take kindly to its surface. You can get it of Obrig Camera Company, 163 Broadway; W. C. Cullen, 61 William Street; A. G. Spalding & Bro., 241 Broadway, and Z. T. Benson, 2334 Third Avenue.

JOHN HAWORTH, Trade Agent.

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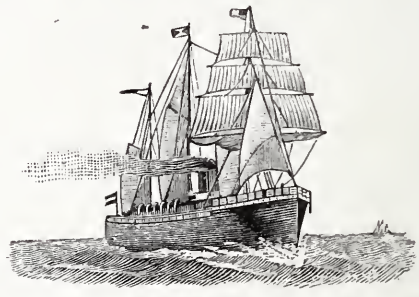
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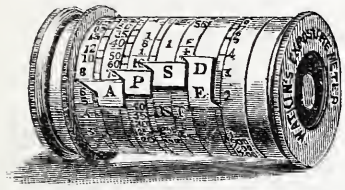
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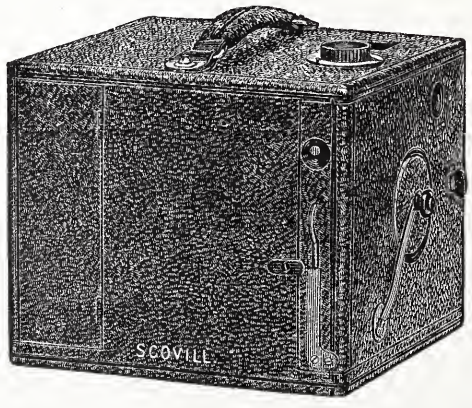
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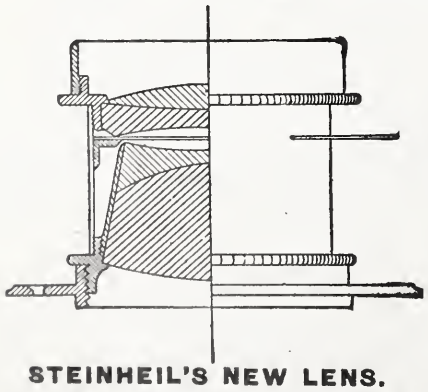
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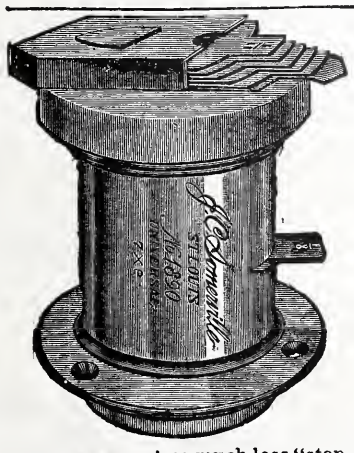
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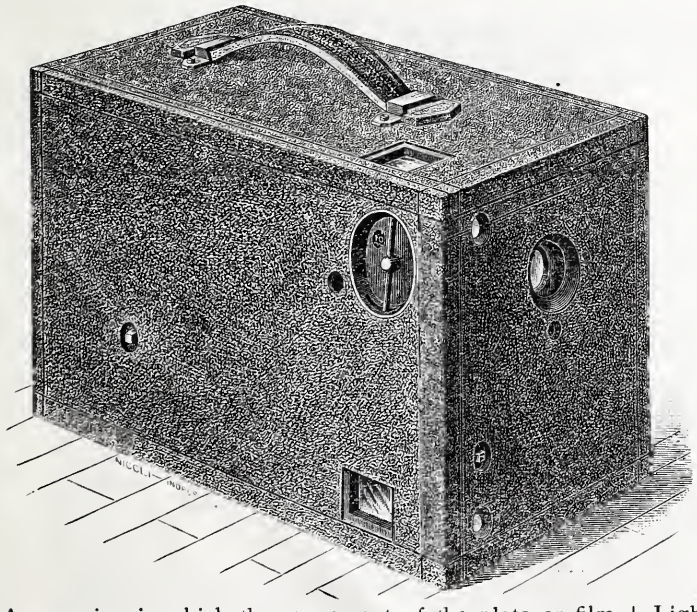
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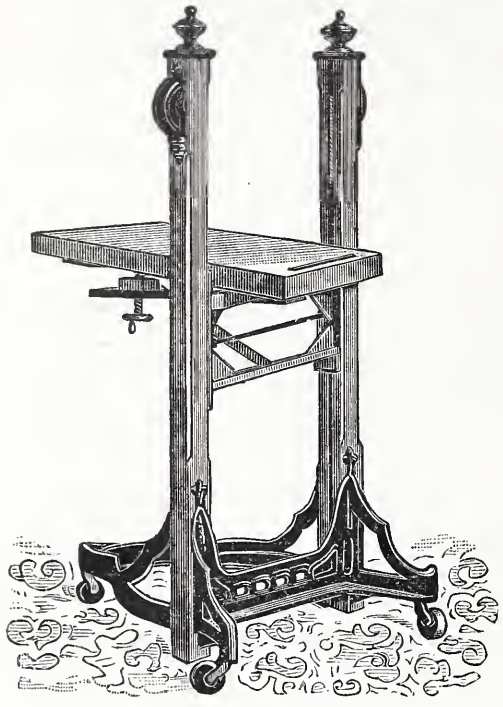
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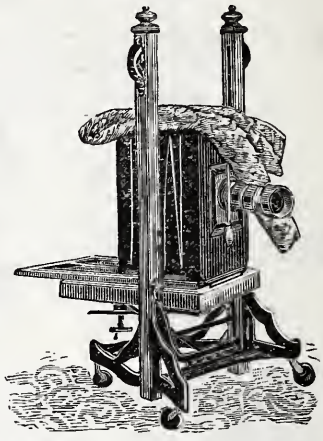
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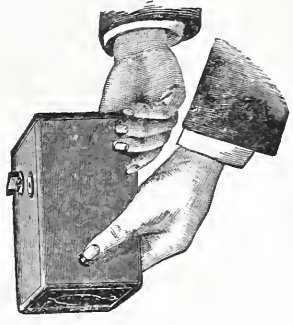
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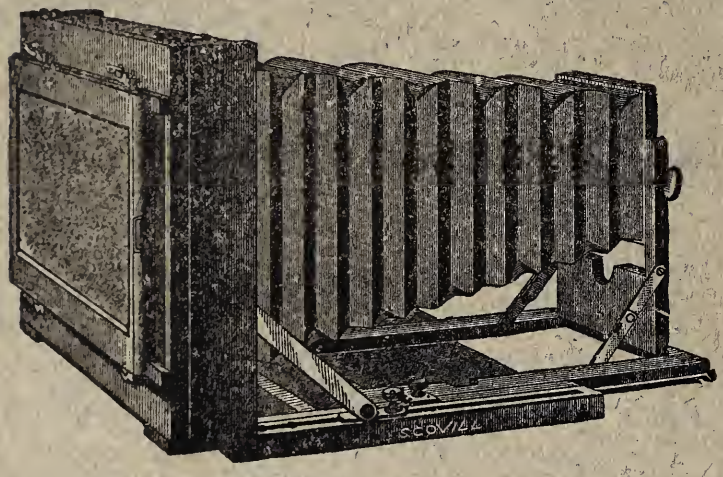
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A SCENE IN ORIZABA, MEXICO.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, MAY 22, 1891. No. 505.

ORIZABA.

THE Mexican scene which embellishes this number of THE PHOTOGRAPHIC TIMES is from a negative by Henry R. Taylor, a skillful amateur of New York, who has once before contributed a frontispiece to our magazine. The view was taken during a four weeks' trip to Mexico. "I carried with me," writes Mr. Taylor, "a 6½ x 8½ 'Albion' camera, and two dozen 'Barnett' plate-holders. This negative was made on a C plate, and developed with pyro and potash. The lens was a Ross rectilinear fitted with a Prosch shutter." In the interesting article which follows, Mr. Taylor describes Orizaba, where the picture was taken.

ORIZABA.

ORIZABA is a town of 15,000 inhabitants, situated in the State of Vera Cruz, 82 miles from the city of that name and 181 from the city of Mexico, at an elevation of 4,000 feet above the level of the sea. In primitive times it was known as Ahanializapan, meaning *joy in the water*. This name passed through various modifications until Orizaba was reached, and proved satisfactory enough to be retained.

The town is built in a little valley surrounded by very fine mountains, among which is the volcano of the same name as the town, the second highest in Mexico; it reaches the elevation of 17,365 feet, and is only surpassed by Popocatepetl. It is not however visible from the town, except from a few parts, where the top of the peak, covered with snow, rears its head over the crest of the Cerro de la Escamela.

The temperature generally remains between 65 and 75 deg. Fahr. the year round. This fact makes the matter of clothing very simple, as not much is necessary and always the same quantity. In the early morning and late evening, when it is rather damp, the natives wrap around their shoulders and heads, covering and protecting their mouths from the damp and chilly air, woolen blankets called *zarapes*, which they carry with them for that purpose. These *zarapes* are of bright and brilliant colors, generally red, which, with their gaudily decorated trousers and large-brimmed and high-crowned hats or *sombreros* heavy laden with gold or silver, present a truly picturesque sight. It is a great pity that in the City of Mexico and a few of the larger towns the native costume is being laid aside and its place taken by our modern style of dress.

Orizaba from its situation is especially adapted for the cultivation of coffee, sugar, oranges, bananas, plantains, and other tropical fruits, and now and then a field of tobacco is seen. But the greatest article of production in the district between Orizaba and the City of Mexico is the magney plant, which yields a juice from which *pulque*, the national drink, is made. The heart of the plant is cut out, leaving a receptacle the size of a coffee cup, which is covered over with a leaf or flat stone to keep out the dust and dirt, and left over night. In the morning a native arrives on the spot with a bag made from the skin of a hog, and by means of a tube transfers the liquid, which has been collected during the night, from the plant into his bag. It is then taken to where it is allowed to ferment in a large barrel, and after that is ready to drink. The natives indulge freely in this beverage and seem to relish it greatly; to a foreigner, however, *pulque* is at first distasteful, and a little goes a great way.

On New Year's Day we went to see a bull-fight. The posters on every street corner and other available place announced that this performance would be one of special interest, as the *matador* of greatest renown, not only in Mexico, but also in Spain, had been engaged for the occasion. This wonderful and enviable man had won great glory and praise at the Paris Exposition, where he had engaged in combat with and slain numerous ferocious bulls, before the eyes of many of the crowned heads of Europe. The posters went on to say that the *com-*

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bat de toros would commence at five o'clock sharp, and as we were desirous of obtaining good seats, and supposing there would be a great demand for such, presented ourselves at the gate of the amphitheater at half-past three o'clock. We begged and besought the man to give us the best seats that were left, being anxious to view the performance from as good a place as possible, and supposing that the best seats were already occupied, since the occasion was such a grand one. To our surprise, but great delight, we were informed that with the exception of three seats, which were reserved for the President and his attendants, we could occupy any we chose. We immediately took possession of three chairs adjoining those which were to hold the President, who turned out to be not the President of the Mexican Republic, but only the Mayor of the town of Orizaba. Having an hour and a half before the beginning of the show, we turned our attention to the objects surrounding us. The bull-ring or *Plaza de Toros*, was built in what used to be a convent. This did not cause us any great surprise, for as a matter of fact nearly all the hotels or large buildings in Mexico were originally built to give shelter and seclusion to monks or nuns. This particular convent must have been erected many years ago, as little but a wall remains to give notice of its existence. Within this wall there have been erected rude wooden benches in a circle surrounding the arena, around which at intervals of about every 25 feet there have been placed wooden palisades, behind which the fighter can take refuge when pursued by his infuriated antagonist. There were three gates leading into the arena. Through the first the fighters were to enter, in number about ten; through the second, their victim—the bull; through the third, a pair of mules to convey the animal, after he had been reduced to a carcass, to where the butchers' boys might prepare flesh for the market.

Our attention at this moment was diverted from further inspection, by the entrance of the presiding officer and his secretary. They came preceded by a trumpet bearer and followed by a guardian of the peace. As soon as his Royal Highness was seated, the gentleman who carried the shining instrument placed it between his lips, and produced a sharp, shrill note, on the utterance of which gate No. 1 turns on its hinges and the bull-fighters, or *toreadors*, make their appearance. This brave little band of warriors is led and commanded by the *matador*, who is followed by his aids, the five *chulos* or *banderilleros;* their rear in turn is protected by two *picadoros* mounted on horses with their eyes blindfolded; these latter constitute the cavalry force of the band. Without turning to the right or left they advance to where the Mayor is seated. He is honored by a low and graceful salute, after which the populace is shown the same distinction. The band is now divided and places in different parts of the arena alloted to each man. At this point the musical gentleman again makes himself heard, and all eyes are turned toward gate No. 2. This is thrown open and a bull rushes furiously into the arena, the poor brute has already been tortured and tormented to such an extent that he is wild with pain and anger; he now stands, however, dazed and stupefied, not knowing where to turn or what to do. He suddenly perceives a red cloth waved in front of his eyes by one of the *chulos*, and is about to rush at his tormentor, when he feels a spear injected in his side by a *picador;* he turns his attention to his new antagonist, and generally succeeds in wounding, not the brave man who pierced him, but the poor blindfolded horse who is obliged to go wherever his rider directs him, and is not able to see and so avoid the advances of his opponent.

At the end of about ten minutes another trumpet call announces to the *picadoros* that their duty is done, and that they can now withdraw and leave the rest of the fight to their comrades. It is the turn of the brave *chulos*, who advance, carrying small gaudily decorated javelins called *banderillas*—whence they get their other name of *banderilleros*. These weapons are made with a hooked point after the manner of fishhooks, so that when they once enter the flesh of the animal he is not able to shake them off by his wild plunges. The bearers of these weapons now take their places, and when the infuriated brute rushes toward them, watch their opportunity, and dodging his charge, hurl their javelins, one from each hand, at the already bleeding animal. The populace applaud, the bull roars with pain, and the *chulos* get more *banderillas*. Soon the *matador* thinks it is his turn. Ordering his aids to retire, he comes forward, bows to the mayor, and delivers a short address in Spanish, to what effect I do not know, but presumably that in the coming contest he will do his best and if death should overtake him, he will find him doing his duty. He now grasps a short sword in one hand and a blood-red cloak, the traditional *muleta*, in the other, and advances toward his antagonist. For a while he renders the poor animal crazy by waving the cloak before his eyes, and then by a skillful movement plunges the sword into the back of his neck at its junction with the spinal column. The poor brute totters from pain and loss of blood, and finally, overcome by all he has gone through, falls down dead.

Gate No. 3 now opens, and a pair of mules are brought in, fastened to the dead animal, and the carcass removed from the arena, amidst gay music, loud shouts of delight, and a heavy shower of hats, coins of various denominations, and other handy articles, to denote appreciation of the great and noble deed just accomplished. After the arena is cleared another *toro* is admitted, and the same elevating performance gone through with. This is continued until four or five bulls have met their end.

These fights are only engaged in on Sundays and feast days. Every small town in the republic has its bull-ring, and most of them have not only one, but two or three, which are the most popular places to spend a Sunday afternoon. We learned that the authorities in the City of Mexico had recently put a stop to the fights within the jurisdiction of the city. At first we supposed that the progress of civilization was the cause of this action, but later were informed that it was not a moral but an economic influence which had produced this restriction —that the fighters would not pay enough for the privilege, and so it was denied them.

To me Orizaba and the neighboring districts were the most interesting in every way of those I visited in Mexico, although of course the capital had more historical relics and attractions, and if I had the space I would gladly enumerate some of them.

Henry R. Taylor.

THE TONING OF PHOTOGRAPHS CONSIDERED CHEMICALLY, HISTORICALLY, AND GENERALLY.

CHAPTER VII.

Alkaline Toning Baths (Continued).

The Bicarbonate Toning Bath.—Bicarbonate of soda was used in a complicated "toning and fixing" bath by M. Jobard,* in 1859. In November of the same year Mr. John Heywood gave a formula in the *British Journal of Photography*, p. 282, in which he recommends the prints to be well washed in both plain water and saltwater, and then a bicarbonate toning solution to be laid on with a brush in a manner which we shall describe further on.

In 1863 Mr. G. Spiller gave the following formula for a bicarbonate bath in a paper which he read† before the Photographic Society of London:

Chloride of gold	5 grains
Bicarbonate of soda	20 grains
Water	1 pint

All these old toning baths err in being too strong in gold.

The Modern Bicarbonate Bath.

Chloride of gold	1 grain
Bicarbonate of soda	5 grains
Distilled water	10 ounces

This bath is ready for use ten minutes after it is made; but it will not keep.

The Tungstate Bath.—A formula given by Mr. A. Hughes, in 1865,* reads: "Take the chloride of gold and just neutralize with tungstate of soda, and then to each grain of gold add 20 grains of the tungstate; dilute with boiling *distilled* water, and when cool the bath is ready for use. Distilled water is mentioned, as common waters vary so much that they sometimes upset all formulas. In strengthening this toning bath, the gold may be simply neutralized with the tungstate, the excess not being required. This bath can be kept and strengthened from day to day, as required, *ad infinitum*. It is found to tone to a rich purple one and a quarter sheets of paper with 1 grain of chloride of gold."

Modern Tungstate Bath.

Tungstate of soda	20 grains
Chloride of gold	1 grain
Boiling water	8 ounces

Ready for use as soon as cold. Add more gold, with a grain or two of tungstate, at the end of each day's work.

Carbonate of Magnesia Toning Bath.—In April, 1866, Mr. E. Seeley read an account of a gold toning bath containing carbonate of magnesia before the North London Photographic Association.† in which he emphasized the following points:—

The gold chloride should first be neutralized, (as sold it is always acid) by the addition of a little carbonate of soda or powdered chalk.

The carbonate of magnesia should be well shaken up with warm (80 deg. Fahr.) distilled water. In this it is only slightly soluble, 50 ounces of water dissolving only 1 grain. The solution is then alkaline to test-paper. Let the solution stand and then pour off the clear part. Add 1 grain of gold chloride to every 20 ounces of the clear solution. The toning bath so prepared is ready for use after 24 hours. It will keep well for several days, but slowly lose its power after that. When used it should always be *slightly* alkaline to test-paper.

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* See *Bulletin de la Société Francaise de Photographie for* 1859; translated in *Photographic Journal* for same year, p. 8.

† *Photographic Journal*, vol. viii., p. 410.

* *British Journal of Photography*, p. 206.

† *Photographic News*, 1866, p. 173.

When using this "magnesia" bath the prints should *not* have all the free nitrate of silver washed out of them. The last wash-water used should be decidedly milky.

This bath requires a well-silvered paper, and would therefore be of little use with much of the ready-sensitized cheap paper of the present day, most of which is sensitized by floating on a bath containing only about 30 grains of silver nitrate to the ounce of water. The best proportion is double this amount, or from 50 to 60 grains to the ounce.

Seeley claimed that with the carbonate of magnesia bath "at least five sheets of paper of the full size can be toned with one grain of the chloride of gold. We usually tone six and sometimes seven." It gives black tones.

The Benzoate Bath.—In 1864 Mr. Carey Lea described a benzoate of potash toning bath in the *Philadelphia Photographer*, which he considered gave even better tones than the acetate bath. He writes: "Three or four grains of caustic potash are dissolved in water in a glass vessel, and the solution is supersaturated with benzoic acid. The exact quantity of the acid is unimportant, provided that rather more than enough to saturate the alkali is added. The first portions of acid dropped into the potash dissolve instantly by combining with the potash, and when a fresh addition refuses to dissolve after a few moments, it may be concluded that enough has been added. The solution is then to be warmed till the remaining acid dissolves. Three or four grains of chloride of gold in solution are then added; and the whole diluted so as to form a bath of eight to twelve ounces."

Lea adds that the bath so prepared may either be used at once, or will keep well.

W. Jerome Harrison.

(*To be continued.*)

THOUGH the "American Annual of Photography and Photographic Times Almanic" for 1892 has not yet been announced, several articles have already been sent in to the editors. A number of negatives for illustrations have also been received, and one enterprising dealer has sent in copy for his advertisement, to make sure of a good location. This seems to indicate that the publication of the book is awaited with a great deal of interest on the part of all connected with photography. It will be issued this year earlier than ever before, and will be ahead in all respects of any predecessor.

IN SUMMER TIME.

BY Coney Island's shore we soon shall roam;
The sight of it sweet memories shall waken.
We'll contemplate the billows and the foam,
And then, of course, we'll have our tintypes taken.

CONVENTIONALISM IN COLOR.

WHOLLY untutored in the art of books, of artists, and of schools, I have yet learnt some elementary lessons from contact with nature, and from her varying moods I gather some artistic glimmerings of what she would teach in various directions. To-night I want to speak of one special point. It is clearly to be noted, as we view one scene after another in our journey through any district, that no two of them, or no one, seen under different aspects, present to our mind the same sense of color. Why, then, should we be tied down to any one color in our prints. It has been laid down by Sir Joshua Reynolds that all art is only a species of imitation. Why should we not imitate, to the best of our ability, what nature presents to us? I know that not all the skill of the heaven-inspired artist, combined with the cunningest hand of the color-mixer, can produce a scheme of color that may translate fairly nature's moods; therefore, it were a bold suggestion that we poor monochrome workers should aim at any imitation of the color we see in earth or sky. Yet such is my avowed object to-night. I hold that we may, in more than a few cases, plainly indicate in some slight degree the salient tint of the view we see. In many more cases, we may fail in this, and yet vary our color to great advantage. I cannot well urge my point (though I fain would) without appearing to condemn platinotype printing, a process I heartily admire. It is the abuse of platinotype I condemn, and a couple of lines from Burton's "Anatomy" are most appropriate to my position, and will disarm any suspicion of interested motives. The lines are these:

> "The best and surest method of advice
> Should spare the person, while it brands the vice."

So I venture to point out without offence a fault that is too rampant in our little world of photography, and to run a tilt at what may be fairly called "conventionalism in color," and, bolder still, to try and point out, by some few examples, in what special direction this fault may be remedied. The art side of photography is too confined, by inseparable and insuperable limitations, for us to tolerate for one moment any artificial and unnecessary restraints. Therefore the decree of fashion, that bids us make our pictures of any one single color,

is most fatal to that truth and individuality which alone indicate true art.

Years ago, photographers were confined to the warm colors of untoned silver prints, and the crudeness and sameness of these led workers to seek a means of subduing and altering them, and gold toning resulted. Following this came the period of the toned purple print, and then the cold gray or black tones of the platinum prints reigned supreme. That any one method or color is the one and only means to be used in reproducing our pictures any thoughtful mind will readily deny. Surely we have within our grasp, out of the several methods possible, a varied media for indicating or harmonizing with the landscape we desire to portray. Why should we not use them? Why should not the beauty of each 'scape, whether of sea or land, be portrayed in a print which is to some extent in harmony with the subject, or the special aspect under which that subject was seen? Why should it be conventional and necessary to depict a glorious sunrise, a broad bright noonday scene of purple moorland, the sparkling ripple of a summer sea, and the fading dusk of a sunless eve, alike in the one dull monotony of funereal black, in cold purple, or in any single shade of red or brown. Such rigid limitations must inevitably pall upon one, place a limit on our efforts, and clog the progress of our art. We must be free from all restraint of fashion or of caprice, be free to make our pictures as may best befit them, free to preserve, or rather to develop, any individuality we possess. To do this we must cast away every idea that this or that color, this or that surface, this or that process is alone the one we ought to use. We must not add to the already heavy fetters which impede our progress, but give ourselves ample room and verge enough for the growth of taste and the cultivation of our finer artistic senses. Otherwise, limited to one method of photographic printing, our minds are cramped, and can only soar in the direction of focus or out of focus—a question of wide interest, but savoring at the present day more of personality than of art possibility.

Variation in both color and surface lies within our reach in chloride of silver papers, and it were folly for us to despise them for the fact that they own such close kinship to that much-abused thing, a silver print on albumen paper. A chloride of silver print, whether it has albumen or gelatine as a vehicle, has much to commend itself to us as a means of photographic print making. I can say, without fear of contradiction, that in point of gradation and transparency of shadows, from any given negative, chloride paper is second to no other process. I speak of gradation and clearness of shadows as if they were two distinct things, and am wrong in so doing. The one implies the other; and without gradation there can be no shadows as in nature, and no attempt at true translation of these shadows in our prints. Ruskin has written on this point. He says: "Gradation is so inseparable a quality of all natural shade, that the eye refuses, in painting, to understand a shadow which appears without it; while, on the other hand, nearly all gradations of nature are so subtle, and between degrees of tint so slightly separated, that no human hand can do more than barely suggest the idea of them."

Such a dictum elevates the translation of the shadow tones to one of the most important features in our work, and yet how little is the matter studied or valued. It is a point which Mr. Davison works out in his writings on tonality, but more from the point of view of the negative maker than of the printer.

Now it has been said in admiration of a photograph, "How like an engraving!" but I venture to point out that, to the thoughtful mind, bent on valuing the two on a true basis, the simile is far from a correct one.

True, in point of color and in texture of the paper possibly the two are on a par. Beyond that they are wide apart. Let us compare them in regard to this matter of shadows. In the photograph these are made up simply of a deposit (more or less dense) of the one coloring matter of which the image is formed; all tones beyond a certain one (which comes very, very early) are black, and nothing more; and in proportion as the roughness of texture of the paper increases, so does the truth of these subtle gradations decrease. This is a fact that familiarity with printing methods readily proves; indeed, it is a fact that can hardly be controverted, however much it may be forgotten or put purposely on one side.

Rough paper, it may be admitted, does break up the shadows somewhat, but this is not the same thing in any sense as the production by more legitimate means of that transparency and detail we want. Besides, whatever goes to break up the shadows must have its equal effect on the high lights and half tones, it must interfere with their true value; and if your negative has in it the thin or bare glass, producing that shadow which needs breaking up, it in its turn may be condemned as wanting, and should, if good work is the aim, be itself broken up and consigned to the dust heap. To refer back again to our simile: an engraving owes its luminosity of shadow not to a mere piling up of color, but to a system of cross-hatching or

stippling; therefore, this sort of gradation is independent of texture of the paper. Here, then, is a fundamental difference between the engraving and the engraving-colored photographic picture, which robs the comparison of all its value at a stroke.

To go on and consider the gold-toned silver print. There is in such a print that which goes far to compensate for our want of power over the true tone values in our shadows, as produced by the work of burin or graver. For the most part a gold-toned silver print is not, strictly speaking, a true monochrome, but one which gives a certain variation in color, from a rich warmth to a cold blue. The shadows of a picture will show this subtle range of tone most, but it is present throughout the print, and is seen by the most careless eye, when the deep shadow and the highest light are contrasted. Of course, the range of tint is slight, but it has a distinct influence on the truth of tone, and the gradation is infinitely truer, I think, than where we have a mere building up of monochrome. The gold toning of a silver print has, it appears to me, a self-selective influence on values which is altogether too little thought of, a power which gives us some advantage over the monochrome artist, or at any rate gives us some compensation for our lack of his power of cross-hatching or his washes. For this superposing of one tint on another goes to make it no longer monochrome, the plating of blue gold over the red silver in a varying degree is something vastly ahead, as I have said of the mere superposition of black on black, as in a bromide print, where these infinite gradations soon are lost, and black fails to convey the lower range of tones by its one blackness.

Thus we have something nearer to that true detail which both in high lights and shadows more nearly represents nature; we have a detail which does not interfere with the breadth of the result, but yet, as in nature, is there, if looked for.

Such an advocacy of the rights of silver printing to notice seems out of place in these days, but *under proper conditions* this process, in some of its variations, should and will hold its place equally with other recognized photographic printing methods. Under proper conditions, I mean as to permanency, as to process chosen, and correctness of manipulations. I do not claim more than that it should have recognition and fair play; let it be judged on its own merits, after a careful trial, and it will take its own place.

It needs no effort to understand why the process, as exemplified by albumen, has fallen so low in the estimation of those who look for higher things in photography. They chafed under its fading qualities, more still under the influence of the great majority who used or rather abused its capabilities, and produced a vast array of prints far below mediocrity, from negatives which had only that same mediocrity to commend them. They blamed the modes by which such prints were produced, instead of blaming the men who produced them.

The few good men who first broke away from this thraldom made negatives which had in them art beginnings; they had in them, too, the roots of approximate tone values, and therefore the prints from them were intrinsically of a higher grade, and the many who aped art, but knew it not, followed blindly, and, reversing the previous judgment, they praised the means and ignored the merits of the men. These men to-day begin to appreciate the evil they have wrought in setting a fashion which has become a fetter, and you find warmth of color in the photographic pictures put before us by the bolder spirits of our time—pictures which, moreover, some admit, while others insinuate, have the shadows lightened by touches of a transparent medium. So that the crusade I preach has earlier and abler champions in deed, if not in word. I claim no merit of originality, no credit for any new thing, but simply urge a little more careful weighing of facts, when choosing one's methods of making prints, and a little more liberal use of self-reliance in choosing for ourselves.

I have instanced the saying, "how like an engraving," and shown how fallacious it is. In the same way it might be said, "how like an oil-painting is an oleograph," and yet how widely do they differ. Which of you would not treasure the veriest sketch by a true artist more than a dozen oleographs. This simile may not perhaps be carried to its furthest conclusion, but it has in it a strong element of truth in favor of my contention. What we want is not a mere likeness to art, but art itself—individuality, and this is only fostered by freedom.

I have been led to these thoughts by a series of experiments in chloride printing of two sorts—Alpha, which gives prints by development, and a gelatine chloride paper of the aristotype class. For purposes of comparison, prints by almost all other known processes were part of the routine, and the results strongly impressed on me the ideas I have endeavored to convey to you to-night. If it were really necessary to urge that other colors than black are artistic, it would be easy to point to

much etching work, where many shades of warm colors are employed, and commended alike by artist and onlookers; while further back we have the bright reds of Bartolozzi, and a great variety of sepia tints. So that it may fairly be said that any color which can claim to be neutral, or nearly so, has been termed artistic in its time and turn.

Therefore, both past actualities and present possibilities make for my contentions, and we must look for some means to assist us in our choice of color.

Apart from fashion, which may be condemned as utterly unreliable, there are only individual taste and the adaptability to subject to fall back on, and these are the two points I urge. While silver printing, as such, is thus defended, it cannot but be confessed that with albumen as a vehicle, it deserves many of the hard things said of it, and my commendations apply to the two processes I have mentioned, where gelatine is used as a basis. The advantages offered by these are, first of all, permanency, which is fairly well established, and possibility of color and surface. We have in surface, choice of ordinary mat or enameled, by simple means which it is unnecessary to name. Here it may be well to point out the partial fallacy of another fashionable dictum.

That highly-glazed surfaces are, *per se*, inartistic is surely a matter of debate. We admire, with good reason, the enamel miniatures of a past age, and there should be no less to admire in an enameled picture of some subjects. If the gloss is the sole or primary attribute of the picture, it may be condemned; but if only secondary, and the picture is good in itself, then there cannot be any valid objection made to it. There can be no universal rule either of praise or blame. Thus much for surface. In color we have a much wider scope, and examples alone can do justice to their variety, while their application brings me to the heaviest part of my task. My own admitted want of art training would have hampered me so much that I had never planned my paper, were it not for a good friend, an artist, to whom I went in my dilemma, who took an interest in the matter, and has given most valuable aid. He was much struck with the proposition I propounded to him, and to him I am indebted for the working out of my examples, and most of the points are quotations from his remarks. The first is a snow scene with bright sunlight and deep shadow. Such a picture needs a most careful choice of tint. Black and white fairly realize it, but not perfectly. "As an artist," says my friend, "I should look for a tint, something of a compromise between the color of the *sunlit* snow and that of the normal shadow. Such a tint would be of a greenish blue silvery gray. That would suggest the scene to my eye." This print, and all the others, satisfy my friend's ideas—so he is good enough to say. Again, a summer scene, with dust-laden road, the calm of evening wrapped in a warm tinted shroud, bowlders strewn about, rustic figures and distant hills—a negative of Mr. Austin's. "There is a prevalent color in such a picture which monochrome would only partly portray, but it is there, and may, in words, be best expressed as a shade of plum-colored olive, otherwise indefinable except in actual color. Such a tint would best convey a sense of the generic color of the picture, and on second thoughts may be put down in homely language as the color of sunburnt grass." This is the picture in question. Another picture is still a summer subject: the sun is hidden by a mist, which veils but not obscures entirely its warmth, and in the haze the white-sailed yachts hang motionless, their clear reflection barely broken in the smooth gleam of the silky sea. Such a picture could not, I venture to protest, be better translated by a photographic print, though its color can scarcely be put into words.

Another seascape print is equally apt. a view taken at sunset; fishing-boats going out of harbor, brown-sailed, to their labor, westward with the sinking sun; sails and sense of fading sunlight. Both have their true color depicted here, and no other tint would equally convey the scene to our minds.

I am indebted again to Mr. Austin for the next example. It may be fairly entitled "After Rosa Bonheur." It is autumn, and there is a warmth of a glowing color in the foliage, and purple haze on the meadows and in the shade, both of which are indicated in the print, it may be but faintly, yet this indication is at least better than if no attempt were made to suggest to the observer's eye what the taker of the negative saw before him.

To be impartial, as I aim to be strictly, there are pictures (thousands of them) to which nothing but black and white would do the barest justice. I have one here, on bromide paper, an architectural subject. Now no one would suggest any other color than gray for this; it best accords with the time-worn abbey walls; the grayness is as apposite here as are snow-white or grizzled locks to the time-worn veteran.

One more example, or rather class of examples, and my limited opportunities are exhausted. In portraiture the same choice of color gives scope for artistic display of fancy or aptness. Here is a

print from another negative of Mr. Austin's, where fancy can hardly imagine a more pleasing rendering, while in a pair of comparative prints (for which I am not responsible) there is a decided advantage in favor of the warm-toned one ; there is in it a suggestion of life and warmth about the face of the boy that speaks of a rich warm blood flowing through his veins, while the other print reminds me of the marble presentment of that same boy.

I have not said anything of moonlight and dim evening effects, for they are almost beyond the pale of legitimate photographic art, and savor too much of trickery to be admirable except as effects ; but, for what they are worth, here are examples of this class of picture.

These several specimens in support of my first contention as to appropriateness of color will give some little ground for my bringing the subject before you. They may not be proof positive, but they are at least fair arguments, and the rest I leave to you. With regard to the other point of choice of color according to individual taste, it cannot be dogmatized upon, but must be left to each one to work out for himself. Those of you (and they are many) who work and think may have found a suggestion on which you may build a larger, nobler superstructure than I could ever hope to rear, and if so I shall be more than content.

It may be said that such a scheme as has been outlined involves a far wider range of color possibilities than any photographic process gives us, but this is not so; the prints shown, in themselves, go far toward disproving such a supposition, and some others made in the course of the experiments I have mentioned still further support the claim that may be made for chloride paper, that an unthought-of range of colors is obtainable by careful and thoughtful workers.

In conclusion, as embodying my urgent insistence on a necessity for the exercise of individuality on this matter of printing methods, I would suggest that a phrase from Pope should be each one's motto:

" Sworn to no master, of no sect am I."

J. Howson.

In a Restaurant.—Diner: I gave my order fifteen minutes ago. You must be thinking I've come in here for some photographic supplies.

Waiter: How's that?

Diner: All you've served me with so far is a dry plate!

The Kind They Have Taken.—Furniture dealers are partial to cabinets, bunco men like to have panels on their walls, certain grocers favor oils, and jolly men lean towards a "bust."

AMONG BY-PATHS AND FIELD-LANES WITH THE CAMERA.

(Paper read before the London Camera Club.)

WHOEVER has read (and who has not?) those charming descriptions of the country by Richard Jeffries and Louis Jennings, will readily understand my taking this familiar title for my paper as being a good description of the class of photographs I intend showing you this evening. They are veritable bits of country life and surroundings obtained in rambles with the camera in what I venture to call by-paths and field-lanes. I have often thought when reading in the photographic journals "Where to go with the camera;" "Can any one tell me where to spend a week with the camera?" those amateurs never read Jeffries or Jennings. I think that many of our modern amateurs rely too little upon their own efforts, and trust too much to the journals, to almost point out the exact spot where to plant the camera. Searching for the picturesque has two sides, alas! One man cannot see anything worth photographing, another can see a mine of work.

" Every man who walks the mead
In bud, or blade, or bloom, may find,
According as his humors lead,
A meaning suited to his mind."

I know that incident and sentiment are very difficult to render as compared with locality, but I have found in many years' devotion to photography that by-places and out-of-the-way localities have always yielded to me charms that I have failed to find in places more notorious. A sort of Wordsworthian and other poetic salt has always flavored my search for camera work:

" One impulse from the vernal wood
May teach you more than man."

It is my intention to confine my exhibits, with a few exceptions, to illustrations of what may be found by diligent search among the least trodden ways of photographic folk.

" The breezy hill that skirts the down,
The sheltered cot, the cultivated farm,
The mead and the field,"

will be my theme. *Punch* says somewhere, When you find a pretty village with a trout stream, don't tell everybody! I will, however, give you one of

my wrinkles how to find, or how most likely to find, similar subjects to those I shall have the pleasure of showing you.

First get Murray's hand-book of some county, then the ordinance sheet of the neighborhood, not less than the 1-inch survey, and showing contour; look out for the valleys; get as far away as you can from the railway stations; be prepared to walk, to ride in country carts, sleep in village inns, and feed on homely fare. You can draw the line at tramps' lodging-houses, and two in a bed; but I know old amateur photographers who could many a tale relate of roughing it.

The modern rapid dry plate, ready-made reach-me-down developer, camera, etc., ought to facilitate matters considerably. By an early start you can cover miles in a day, get into the out-of-the-way corners of the country, have the pleasure and variety of observing localities, dress, and occupations of the inhabitants, wander among the old cottages, farm-yards, manor houses, mills, barns, old inns, lanes, roads, woodlands, downs, looking after and admiring the thatched cottages, timbered and half-timbered houses, wattle and dab rough cast, quaint stone steppings, dipping places, gabled out-buildings, and all the wealth and poverty of the surroundings; and, if you carry a sketch-book, make a note of the charm of color, how the lichen swarms up the old walls and church tower, the boles of the trees, and covers the tiles of the cottages—things you never see in towns and cities. Having now introduced my subject to you, I will endeavor to illustrate it by some of my efforts in these localities. There may be a few that claim to be places of well-known resort, but for any shortcomings

> "Be to their virtues not unkind,
> And to their faults a little blind,"

and remember that "of making many photographs there is no end," and "much slide-making is a weariness of the flesh."

Frank Howard.

Wizard Edison's Vision.—CHICAGO, May 12.—Thomas A. Edison, the electrical wizard, arrived here to-day. When asked if he had an electric novelty in store for the Columbian Exposition, he said: "Well, I have a thing in view, but the details are yet somewhat hazy. My intention is to have such a happy combination of photography and electricity that a man cansit in his own parlor and see depicted upon a curtain the forms of the players in opera upon a distant stage and hear the voices of the singers. When the system is perfected, which will be in time for the Fair, each little muscle of the singer's face will be seen to work, every color of his or her attire will be exactly reproduced, and the stride and positions will be as natural as and very like those of the live characters."—*N. Y. Times.*

Notes and News.

N. C. Thayer & Co., photographic merchants in Chicago, Ill., have made an assignment.

John and Thomas Ryan have opened a photographic studio on Central Avenue, Lynn. The young men are very popular in the city.

A. L. Simpson, Vice-President of the Society of the Amateur Photographers of New York, has been awarded the *New York Press* prize camera for the best photograph sent to that paper.

Mrs. L. W. H. Myers, of London, a sister of Mrs. Henry M. Stanley, is said to be a skillful amateur photographer.

A Rubber Bag.—Photographers should keep their cameras in a rubber bag having a draw string, to keep them from the dust, and so in a great measure do away with pin holes.

A Clever Amateur Photographer, and a member of the New York Camera Club, is Miss Mary E. Martin, of West 40th Street. She excels in portraiture, and among her collection are admirable pictures of Edmund Russell, the expounder of Delsarte's theories. These photographs show Mr. Russell in his eastern robe—a choja by name.

Photographs are not Exempt—The Treasury officials have decided that certain photographs imported through the mails for permanent exhibition at the Girls' High School of Brooklyn must pay the usual duty, that institution, in the opinion of the officials, not being established for the encouragement of the arts or of science within the meaning of the law.—*Washington Record.*

Portrait Wanted of General Burke.—The Illinois Commandery of the Loyal Legion is anxious to add to its collection of photographs one of that gallant old veteran the late General Martin Burke, U. S. A., but does not know the address of any living member of the General's family. Perhaps some of our readers may be able to furnish the desired information.

Mrs. Richard P. Lounsbery is a very clever amateur photographer. She has many fine and costly cameras, and a studio charmingly fitted up at her summer home at Bedford, N. Y. It is in portraiture that she excels, and she understands to perfection the art of posing her sitters. At a glance she catches the portrayable possibilities of her subjects, and demands of them a turn of the head, a light of expression, and poise of body that are valuable qualities many professionals might study with advantage from her pictures.—*New York Continent.*

The Bausch & Lomb Optical Company have inaugurated a prize contest to take place among the amateur photographic associations of America. Prizes consist of lenses and cash. Full particulars, including necessary blanks, etc., will be furnished free to any society interested by addressing The Bausch & Lomb Optical Co., Rochester, N. Y.

Amateur Photographers.—Cranks who are looking forward to a pleasant trip in the country this summer may just as well remember that the town authorities of two little hamlets up in the White Mountains have passed ordinances forbidding the taking of photographs of any citizens against their will with or without their knowledge. This is to warn the fellow with a "detective" camera that in taking a snap shot at citizens of either of these peculiar towns, he may press the button, but the village constable will do the ar-rest.

To Visit Mexico.—John L. Stoddard, who has finished his twelfth lecture season, proposes a new departure in his plans for next year. He has become widely known as a traveler through Europe, and now he proposes to turn his attention to certain features of our own continent. Attracted by its far-extending and exceptionally interesting history, by its unique features of civilization, and by the reported beauty of its scenery, he has decided to include one or more lectures on Mexico in his series of lectures for next season. As it is his rule never to speak upon a country with which he is not personally acquainted, his managers, Messrs. Burditt and North, have arranged for him an excursion under unusually favorable conditions. The party, consisting of Mr. Stoddard, Mr. North, and Mr. Rau, the photographer, started from Chicago.

Artistic Photography.—The decline in genre photography may perhaps be accounted for by the extremely low prices for photographic work, but this decline may also be held accountable for the low prices. Among the photographers interviewed on the subject of composition and lighting in photography was Miss Garrity, who is rapidly building up fame and patronage, and whose commodious and elegant establishment at Jackson and Wabash is sufficient evidence that woman can succeed in this field. She explained how it required time and study to produce pictures—not mere photographs—and showed an interesting collection she was engaged on, which was to illustrate a poem ; also a group of two young society women posed as Parthenia and her mother ; but what attracted the writer most was a collection of children's pictures, marvelous bits of art. So great has been her success in this latter branch that she has made 40,000 negatives of children during the last five years.—*Chicago Globe.*

Pictures by Telegraph.—A stock company is said to be organized in Cleveland to operate a curious electrical patent. The device, it is claimed, will reproduce a photograph at a distance by means of electricity. The work is done direct from the photographic negative, which must be in relief about the thousandth part of an inch. By means of a tracer a perfect engraving is made in wax or metal at the other end of the line. The photograph is entirely in parallel straight lines running from right to left, which are heavy or dark, resulting in a shaded picture. The whole thing, including the making of the relief negative, can be done in three or four hours. When the transmitter passes over a light portion of the subject the receivers cause a depression or maximum cut to be made upon the surfaces, and when the dark portion of a subject is under the transmitter the receivers will make no record. Should the subject present a half tone the receivers will interpret the same as a half tone. The product of the receiver is in the shape of engravings from which stereotypes can be made for printing upon ordinary printing processes. The invention is adapted to make embossing dies, etc., automatically from a pattern, and to reproduce any variable surfaces electrically at a distance or locally.

Copyright Law.—From a letter of inquiry received at the Treasury Department it is inferred that some persons think the copyrighting here of a photographic reproduction of a foreign painting or other work of art bars any later comer from the privilege of photographing the same thing and copyrighting his works.

Librarian of Congress Spofford, who issues all copyrights, said that this was a decided mistake. Any person who chooses to secure a copyright of a photograph of the work of a foreign artist can do so by making application and paying the fee. That will prevent any other person from reproducing the copyrighted photograph, but it does not hinder anybody from taking an exactly similar photograph of the same painting and getting his photograph copyrighted. Mr. Spofford said that his duty in issuing copyrights was purely ministerial, and he has nothing to do with the question of infringements. But he is, of course, thoroughly familiar with copyright law.

Mr. Spofford pointed out that the uniform decisions of the courts have been that infringement of copyright is the appropriation of the work of the person protected by copyright. The copyrighting of a city directory, for example, prohibits any other publisher from taking the names from the directory and publishing them, but it does not prevent him from collecting the same names, publishing them in the same alphabetical order, and obtaining a copyright for his work. So the person seeking to copyright a photograph must not, by reproducing some other person's photograph, appropriate that person's work. He must take the photograph himself. The new copyright law makes no change in this respect.—*New York Times.*

Photographic Societies.

THE CAPITAL CAMERA CLUB, OF WASHINGTON, D. C.

A NEW camera club has been organized in Washington, D. C. It is composed of a number of well-known amateurs, and its quarters will be in the building northeast corner of 7th and D Streets, where the club has four rooms, including an excellent gallery light and a well-appointed dark room. The officers elected for the first year were : Mr. Albert Le Breton, President ; Mr. Geo. W. Choate, Vice-President ; Mr. Frank B. Dante, Secretary-Treasurer, and these members, together with Mr. J. Mitchell and Mr. A. L. Moore, constitute the Board of Directors.

THE OAKLAND (CAL.) CAMERA CLUB.

THE members and guests of the Oakland Camera Club enjoyed a special treat Tuesday evening, May 5th, at their rooms, upper Hamilton Hall. Mr. William Dougall, a photographer formerly of New Zealand, exhibited before the club a large number of extremely interesting lantern slides of the scenery and peculiar characteristics of New Zealand and the islands lying south of it. Among them were a large number of views of myriads of sea birds in

their homes, and exceptionally well produced views of sea lions. Those who were fortunate enough to be present and hear what Mr. Dougall had to say of this interesting country will long remember the odd pictures shown and described by him.

EXHIBITION OF THE PHOTOGRAPHIC DEPARTMENT OF THE BROOKLYN INSTITUTE.

A LARGE company of artists and photographic amateurs gathered on Tuesday evening, May 12th, at the gallery of the Brooklyn Art Association, to view the first exhibition of photographic prints by members of the Department of Photography in the Brooklyn Institute. As the first important exhibition of photographs ever held in this city the display had a certain novelty not only for connoisseurs of the camera—of which the number increases marvelously—but for artists and others interested in watching the rapid advances of the half-century-old science of the lens and sensitive plate.

The walls of the gallery were lined last night with framed photographs of almost every description. A significant feature of the hanging was that everybody, or nearly everybody, was "on the line." Nobody was "skied." Under the circumstances the Hanging Committee was probably in much less disfavor than is usual at artistic displays. The prints not only represented a great variety of subjects and methods of taking photographs, but revealed many forms of printing them: The ordinary "silver prints" were supplemented by "bromide," "aristotype" and other varieties of printing. There were a number of interesting enlargements.

A Jury of Award, consisting of Joseph H. Boston, Instructor of the Art Association classes, and Mr. H. M. Steele, of the art department of *Scribner's Magazine*, passed judgment on the exhibits yesterday afternoon, the pictures then being unnamed and without other means of identification as to the makers. The award was as follows: First award, for highest union of technical excellence with artistic purpose and effect, to Mr. Black's "Brother and Sister." Awards for best portraiture and most artistic work, without regard to subject, to same picture. For best landscape, to Mr. Wookcock's picture "A," in group 83. For best scientific work to Mr. Atkinson, for exhibit 10. For best technical work to Mr. Dingman's central portrait. For best hand camera work to Mr. Dingman's tennis picture. For best interior to Mr. Black's picture No. 66. For best group and composito to Mr. Black's picture, "The Death of the Tree." For best lantern slide to Mr. Street's "X" in group. For best lantern-slide collection to Mr. Butler.

THE PHOTOGRAPHIC SOCIETY OF JAPAN.

A MEETING of the Photographic Society of Japan was held in the Masonic Hall, No. 60, Yokohama, on Friday, as usual. From a little after midday there was an exhibition of prints on the bromide paper that Mr. Cocking had presented to the society a few months ago. Mr. Cocking offered three prizes at the time that he presented the paper, and these were awarded by ballot of members and of the public on Friday. Mr. K. Ogara, amateur photographer, won the first prize; Mr. A. Futami, professional, the second. For the third prize there were so many prints that received an equal number of votes that no decision could be come to at the time of the meeting. It was decided to leave this matter to Mr. Cocking. The members of committee exhibited, but did not compete for prizes, and the work of Mr. C. D. West was particularly admired. There was a set of microphotographs by Mr. I. Isawa that were considered to show great technical merit. Flash-light photographs taken at various meetings of the society were shown, and some by Mr. Kajima were particularly good.

Mr. K. Ogawa showed a large photograph of the interior of the Russian cathedral in Tokio. This, as a sample of interior photography, always very difficult, and also as a sample of collotype work, is as fine as anything of the kind that we have seen.

Mr. Cocking showed a large number of "kodak" cameras. These instruments are highly ingenious and are excellently made. The larger sizes, which have, we believe, reached Japan for the first time, relieve the intrument from the stigma of being only a toy.

In the evening there was a regular meeting of the society, when Captain Kenderdine occupied the chair, and the following gentlemen were elected members of the society: Mr. Allan Owston, Mr. W. Forbes, Mr. George Brinkworth, Mr. T. H. Tanner, Mr. A. T. Watson, and Mr. J. A. Brooke.

Mr. W. K. Burton gave a demonstration of a modified silver printing process. Briefly put, the process consisted in making one solution of nitrate of silver, and another of "salt" (preferably chloride of ammonium), citric acid, carbonate of soda, and a little gelatine. The solutions are warmed and mixed, when an "emulsion," that is immediately ready for application to any surface that can be sensitized, results. The process of making the emulsion, sensitizing the paper, and toning prints by Clark's platinum method, was shown. Specimens of finished prints were also shown.

Mr. Burton said that the process had not yet been long enough in use to know whether it had any real advantages, but the possible advantages that he saw were that a single solution that would keep fairly well could be prepared in a few minutes, and was at once applicable to any surface, whereas in all other silver printing out processes, there were either two operations, that of salting and that of sensitizing, or a washed emulsion which was comparatively troublesome to make, had to be used. The process was a cheap one.

Mr. West thought the saving of trouble was not great. So far as he could see, the advantage of the process was that it made it possible to get a blacker color—one more nearly approaching to an "engraving black" than by the ordinary process.

Mr. Kajima made two exposures of the meeting by flash-light.

The proceedings ended with a vote of thanks to the chairman.

The hall was kindly lent to the society by Mr. O. Keil.

FORCE OF HABIT.

SHE was a fair photographer, and he
A man whose courage never yet forsook him;
So when he swore he loved her passionately,
He struck a pose—no wonder then she *took* him!

The Editorial Table.

Bromide Paper and How to Use It. A Practical Treatise. Written by an Expert. New York: The Scovill & Adams Co.

This is a useful little pamphlet of twenty-five pages, illustrated with a frontispiece on Donaldson "Star" bromide paper, from a pleasing child negative, entitled "The Sisters." The directions given are very explicit and complete, assuming the reader to know nothing whatever about the subject. A beginner may therefore learn the use of bromide paper from this little book without further instructions, provided, of course, he follows the directions in his practice. The pamphlet is divided into three parts: first, a general treatment of the subject, stating the advantages of the method, the character of the emulsion, reasons for its popularity, and a full account of the developing, clearing, fixing, washing, and mounting processes. Then follow "General Remarks"—which constitute the second portion of the work—on handling and developing paper, time of exposure, treatment of over-exposures, accelerating, blisters or frills, the acid fixing baths, reducing over-exposed prints, and other developing agents. The third and concluding part consists of "Advices on Special Points," part of which was reprinted in our issue of last week. Bound in neat paper covers, the pamphlet is mailed post paid to any address on receipt of 25 cents.

Results of Exposures with the Watkins Exposure Meter.—From practical tests on Carbutt's plates, month of April, 1891:

B.	Sen.	16.	A. 8.	P.	8.	S. 50.	D.	f/32.	E. 8
B.	"	20.	" "	"	12.	" "	"	"	" 4½
Special Ortho. & Stripping	"	23.	" "	"	25.	" "	"	"	" 3
Special.	"	25.	" "	"	40.	" "	"	"	" 2
Eclipse.	"	27.	" "	"	60.	" "	"	"	" 1

These are full exposures and require a developer with a minimum of alkali and some bromide yielding a vigorous and full-timed negative.

"Photographic Optics."—"It ought to have a large sale. The name of the author is a sufficient guarantee of the correctness of the theoretical and practical part of the work."—*Prof. S. W. Burnham, Lick Observatory, Mount Hamilton, Cal.*

What He Read.—"I've just been reading an article on how to take pictures by a sudden burst of light; I read it twice."

"So, you're fond of *flash* literature, eh?"

Record of Photographic Patents.

452,059. Calender for Photographic Purposes. August Lentnor, Vienna, Austria-Hungary.

452,119. Photographic Camera. Benjamin J. Edwards, London, England.

TRADE MARKS.

19,476. Photographic Dry-plates. John Carbutt, Philadelphia, Pa.

Photographer (taking Pugilist's Portrait: "Now, my dear sir, if you'll try to assume a more pleasant expression I'm ready to proceed."

Pugilist: "Wot's dat yer say? I told yer I wanted a pictur' dat me friends would know me by. Let her go as she is, widout no monkey-shines."—*Judge.*

Queries and Answers.

71 PHOTO.—Can a wet plate holder be used for dry plates?

71 *Answer.*—Certainly, but you must remove all nitrate of silver from it. A very trace of it coming in contact with the emulsion plate would ruin it utterly.

72 A. RTIST.—Will you describe the method of working for a "zinc block" from a pen and ink drawing for newspaper work, and oblige.

72 *Answer.*—This column does not afford sufficient space to describe the process in detail. Read Dr. E. L. Wilson's book on Photoengraving, Chapters IV, V, VI, VII, VIII.

73 JOHN R. CLEMONS writes: I see in the QUERIES and ANSWERS that No. 64 has run on a snag. If you will permit me I will lift him off. His bath is too strong for the thick coating of albumen. The surface of the albumen is coagulated, and the high strength of silver don't penetrate as quickly as a 40 grain bath. The albumen must be coagulated clear through; if not, that portion next to the paper will soften up and will mush up between the fingers and leave the print in a dilapidated condition. The paper laid overnight in the cellar or dampening box is sufficient.

74 A. E. H. writes: While calling on a brother photographer I found him ready to tone and watched him loose a large lot of prints. The paper looked nice when printed. He put it in a plain wash water for five minutes, then changed the water and put in a small lump of salt, and albumen at once changed and appeared rough and granulated. By passing the finger over it removed the albumen and image. The paper was Steamer brand; bath 60 strong. I told him that I used some Steamer paper, but used acetic acid to redden the prints and had no trouble. The next day, taking some of the same silvering, printed and toned with acetic acid, and everything was all right. This was more than I could solve. Can you help me any and answer in THE TIMES?

74 *Answer.*—To add salt (chloride of sodium) to the last washing water but one is done for the purpose of converting any free nitrate of silver still adhering to the print into chloride of silver. So far, so good. But, in many instances, washing is not done sufficiently, and when salt is added to the water containing nitrate of silver, a voluminous precipitation of chloride of silver will take place; it settles upon the print, and makes toning a very difficult operation. The chloride of silver assuming color deceives the eye of the operator. Furthermore chloride of silver is soluble in an excess of salt, which will account for the rough appearance of the surface of the print, although the albumen film is not affected, as you seem to have noticed. By all means retain your method of adding a trifle of acetic acid to the wash water. The reddening of the print allows a better watching of how toning proceeds, and also contributes to a warmer tone than those slatey gray pictures many photographers are so fond of.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

W. I. LINCOLN ADAMS, Editor.

Issued every Friday.

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Please find inclosed $5, for one year's subscription to THE TIMES. I have been without it now for a year, and I feel that I have lost just that much.

Yours truly,

J. P. DAVIS.

GARDINER, Me.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I acknowledge with thanks the receipt of Series 37, the very handy treatise on "Photographic Optics," by Professor Burton.

His style and method make it very pleasant and profitable reading, and I heartily predict for it the career of usefulness which is forecast by its publishers.

Very truly yours,

C. W. CANFIELD.

NEW YORK CITY, April 29, 1891.

MR. W. H. JACKSON, the well known landscape photographer of Denver, has recently made a change in his firm by placing the business on a corporate basis. Messrs. Chain & Hardy, the former partners in the firm of W. H. Jackson & Co., have been bought out, and the W. H. Jackson Photograph and Publishing Company, a close corporation, has been formed with a fully paid up capital stock of $30,000.

Mr. Jackson is President of the Company; and, as heretofore, is the head and front of the concern. Mr. Horace A. Bird, formerly General Agent of the Passenger Department of the Colorado Midland Railway, is the secretary and treasurer.

The new company proposes to extend their view business quite materially; and Mr. Jackson's excellent work will soon be on sale in all the principal cities of the country.

Studio Changes.

Aylmer, Ontario. E. S. Phillips has sold his gallery.

South Bend, Ind. Bonney & Wallace have dissolved partnership.

Business Notices.

STOLEN from Bonner, Preston & Co., Hartford, Conn. One new 6½ x 8½ Universal Camera; one 6½ x 8½ Gundlach Perigraphic Lens, No. 2222, and one 8 x 10 Gundlach Wide-Angle Lens, No. 2081. A liberal reward will be paid for the apprehension of the thief or the return of the property. BONNER, PRESTON & CO.

WANTED.—To exchange, a No. 1 Kokak Camera, in good condition, for a camera in which dry plates may be used. Address
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BEFORE stocking up for the summer's work try the Chautauqua plate.
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WANTED.—Choice stereoscopic negatives from all parts of the world. Address
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JOHN HAWORTH, Manufacturer, Phila.

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C. M. BROCKWAY, 33 Worth St., New York.

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FOR SALE, and must be sold at once, a good equipped, etc., Gallery; good large rooms; fine light; between 12 and 15 towns from 1 to 10 miles; good paying business, oldest gallery in town, 31 years established; good variety of business in town; rent, $40 per year. Gentlemen, before buying elsewhere, please call and see this Gallery; it will pay you. C. J. KRATT, 291 Main Street, Athol Highlands, Mass.

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JOHN HAWORTH, Trade Agent.

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Gentlemen:—I have been using two of Beck's lenses during the past season on the Sheepshead Bay Track, where I have officiated in my capacity of Photographer to the Coney Island Jockey Club, and am pleased to say they have worked to my entire satisfaction. I inclose two prints taken from negatives made with your lenses, showing their rapidity as well as good covering power when used with full aperture, as I am compelled to use them for my work. I have used lenses by various makers, but never found one to suit until I tried the Beck, which I think perfection. Very faithfully yours, JOHN C. HEMMENT.

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Photo operator and retoucher. Must be capable of taking full charge. Address, with samples, Hubbard, care of Pulman, 935 Pennsylvania Avenue, Washington, D. C.

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Under the Patents of C. H. Leonard,
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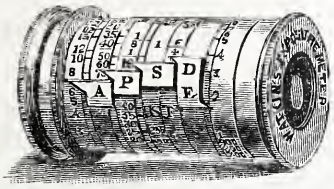
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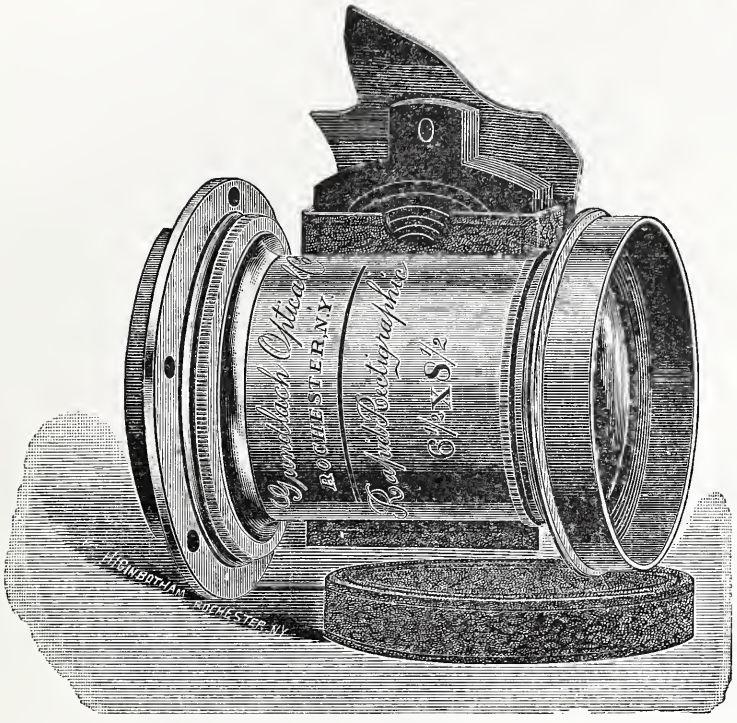
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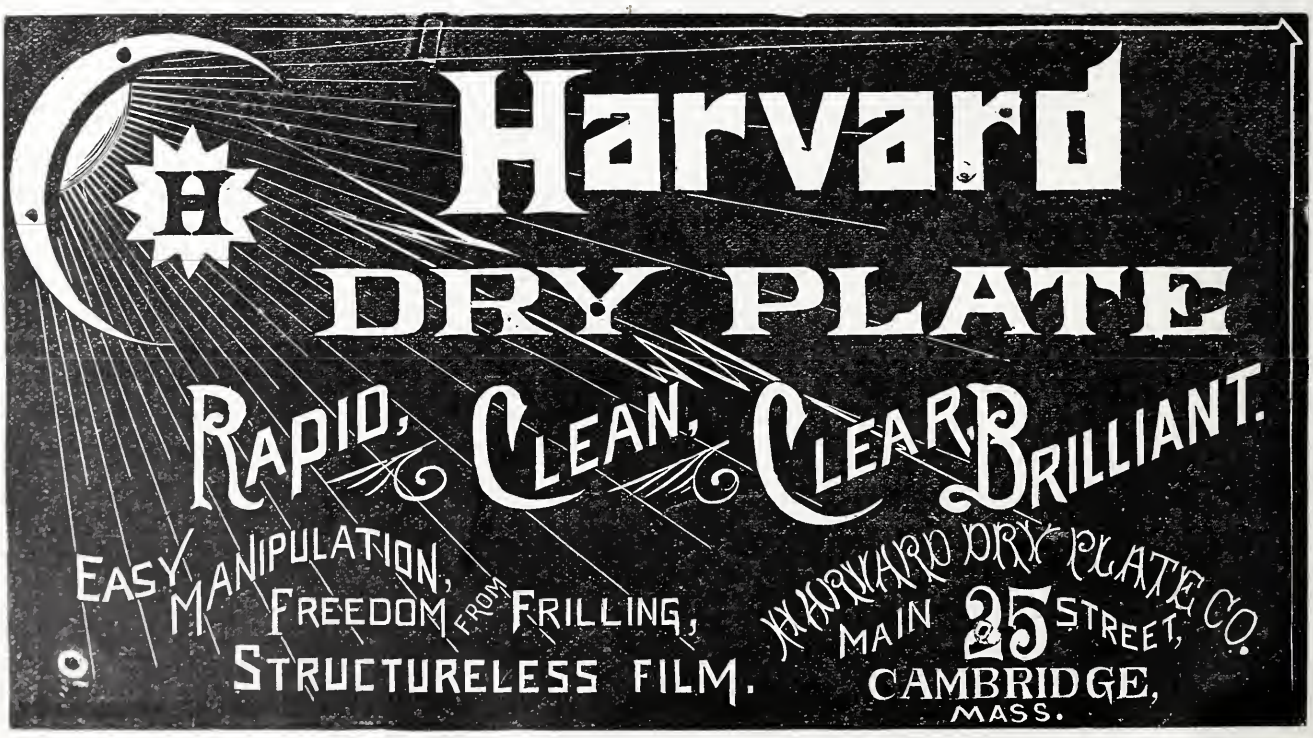
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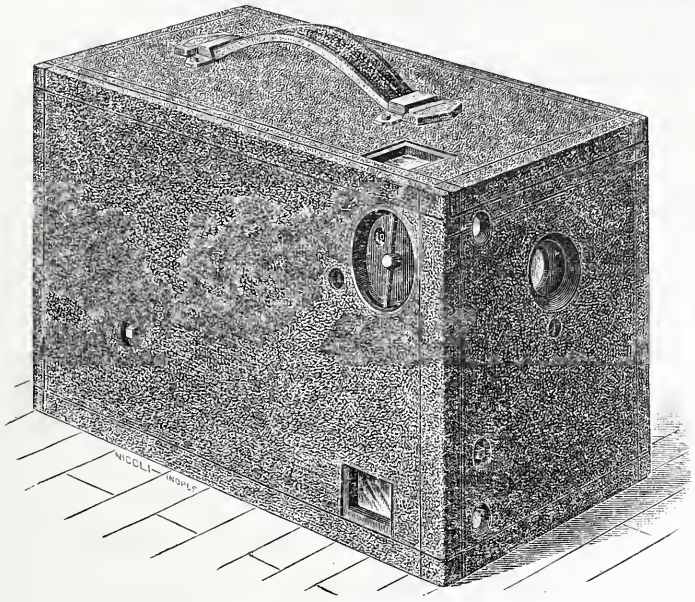
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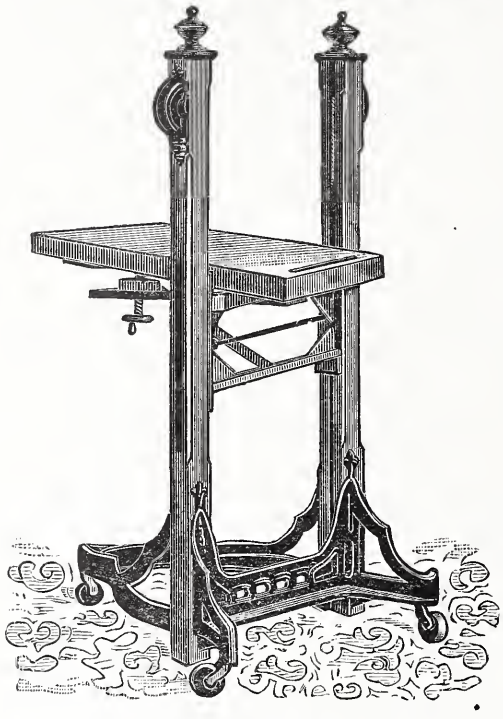
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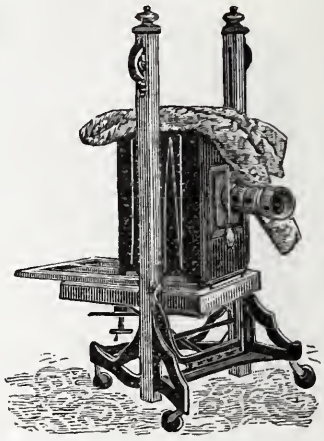
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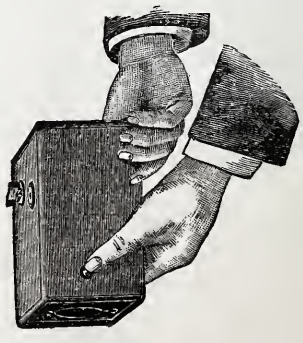
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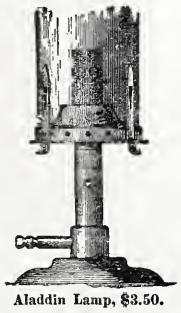
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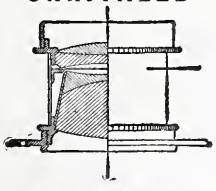
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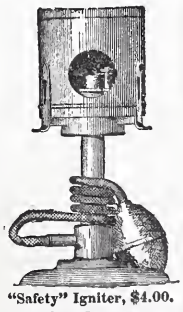
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P. T. BARNUM.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, JUNE 5, 1891. No. 506.

P. T. BARNUM.

WE take especial pleasure in presenting our readers this week with a portrait of P. T. Barnum, the world's greatest showman. It is an excellent likeness, as all who have seen this remarkable man will know. It is a recent portrait, made not very long before his death, and therefore depicts the genial showman as he was familiar to most of us. Mr. Barnum was more than a great showman He was a true philanthropist in the broadest sense of the word. His winning personality and attractive private character are known, of course, but to few, members of his family and immediate friends ; with his public career, however, scarcely a school boy in the land is unfamiliar. A sketch of his life in these columns is therefore unnecessary at this time. Merely a glance at the portrait tells one much of this great man. His character is revealed to an unusual degree in his face. The picture, moreover, is an excellent model of posing and lighting for those who study portraiture.

THE ALBUMEN PROCESS.

I.

THE first negatives on albumen films made in America were probably those by Fredric Langenheim, of Philadelphia, who, after having made talbotypes with much success, experimented in his own way and quite independent of what was done in Germany, England and France in the same direction, made very beautiful, clear and intense negatives on albumen films, but never communicated his method of working to any one. Nevertheless it became known that his process was a modification of that then practiced by many French photographers.

At the same time John A. Whipple, of Boston, an indefatigable photographer and experimenter, whose merits have never been fully recognized by the profession, had perfected a process of his own to make negatives upon glass, furnished with an albumen coating, took out a patent for it on June 25, 1890, in which he claimed particularly the making of negatives and positives upon transparent or translucent plates.

A most interesting feature of this patent claim is the preparing of plates, for Whipple employed an unwashed emulsion for that purpose. He added a soluble iodide to the albumen and afterwards an equivalent amount of nitrate of silver to effect a conversion into iodide of silver. The coated plates were afterwards immersed in a nitrate of silver solution acidified with acetic acid and developed with gallo-nitrate of silver, a method retained in all similar processes.

Whipple's celebrated albumen honey process, which never has been patented, was entirely different from the original. Magnificent results were obtained with it. In the recollection of some of our oldest photographers, Whipple called his method "crystallotypy," because of the clear and crystalline appearance of the negatives made after it in comparison with those of Mr. Talbot's on paper. Langenheim, who had kept his process a secret, was superseded by Whipple, and patented afterwards a method to display to best advantage positives on glass or hyalographs. But it is our intention here to describe only how the crystallotype was made and for what purposes it was employed, until it succeeded to collodion. The process is somewhat similar in a general way to Niépce's, although quite different in its detail.

Iodide of potassium 3 drams, bromide of potassium 30 grains, chloride of sodium 10 grains, were dissolved in 2 ounces of water and added to a mixture of 8 ounces of fresh albumen, from which the germ had been carefully separated, and 7 ounces clear and liquid honey. Crystallized honey never answered as well as that taken directly from the comb. The mixture was then beaten into a stiff froth, allowed to settle, and strained through flannel. The plate was coated in the same

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manner as with collodion, but as the albumen mixture is not as volatile as collodion, a more uniform coat was given, to large plates especially, by flowing it from corner to corner, draining the surplus off and giving the plate a rotating motion. After coating the plate was heated in an oven or over an alcohol lamp till, when still warm, the coating would not stick to the finger.

The most important but also the most difficult part of the process was sensitizing the plate in the silver bath, compounded of 6 ounces of nitrate of silver dissolved in 60 ounces of water, iodizing it as is done with collodion silver baths, and adding finally to the above quantity 6, 8, and even 10 ounces of acetic acid No. 8. The plate, still warm, somewhat higher of temperature than that of the silver bath, was then dipped for two or three minutes, during which time it was kept in motion. If the plate was to be used immediately after sensitizing, but a superficial washing was required, but if to be kept for future use—and albumen honey plates did keep as well as gelatine emulsion plates, all free nitrate of silver had to be thoroughly removed.

Wet plates with a trifle of silver adhering work nearly as quick as a collodion plate, but when dry they require a very long exposure.

Many difficulties arose in sensitizing albumen plates. When the film washed off in flakes the plate was not dry enough, or too cold, or the bath not acid enough. Or the whole surface was cracked into a variety of geometrical figures or lines running in all possible directions, when the plate was too hot. Crystalline honey in the mixture of albumen or unclean plates produced frills and blisters, air bubbles, comet-like marks, dust pinholes; in fact troubles were encountered as with all other processes that were introduced afterwards.

Developing was done in olden times by placing the plate upon a daguerreotype gilding stand, and pouring the developer upon the previously-wetted plate. Anybody returning to the old process now would doubtless develop in a pan, as we do with gelatine plates.

The developer was a saturated, aqueous solution of gallic acid, the accelerator a few drops of the nitrate of silver bath, aceto-nitrate of silver. To increase the strength of the gallic solution, a solution of the acid in alcohol of much higher strength was added, when under-exposures were evident. Over-exposures were regulated by weakening the developer, but it took a long time, hours perhaps, to develop an over-exposed plate. Acidifying the developer with citric or acetic acid would probably have restrained an over-exposed plate satisfactorily.

After developing the plate it was washed, fixed in hypo, and washed finally in pure water.

A properly made albumen negative presents a beautiful appearance, absolute clearness and transparency in the non-developed parts, for which reasons they would do well for the reproduction of line work and thorough opacity. The tone of the deposit is of a greenish black, and not very well adapted for transparencies or lantern slides, without toning, which however can be easily effected with chloride of gold or chloride of platinum.

During the few years the albumen process was practiced in America it was very much modified and improved, and the sensitiveness of the plate increased. By reducing the original quantity of honey, coating the plates was much facilitated, the addition of fluorides to the albumen increased rapidity perceptibly, but injured the solidity of the film. Cyanide of postassium had a similar effect, but the omission of chlorides from the film and an increase of bromide resulted in never-heard-of sensitiveness. Only a few pictures were made with larger proportions of bromide of silver, for even when this innovation was first proposed collodion was already ringing the death knell of the process.

By the request of some of our readers we have unearthed a lost treasure, and begin with describing the albumen process as practiced nearly forty years ago in America. In subsequent articles we will consider how our English friends have worked, and how albumen negatives and positives have been and are still made occasionally in France.

C. E.

THE NEW YORK EXHIBITION.

THE Fourth Annual Exhibition of the New York, Boston and Philadelphia Societies, under the auspices of the Society of Amateur Photographers of New York, from May 25th to June 6th, will have reached its conclusion before these lines are in print; too late to urge on all who can possibly attend the desirability of their doing so. For this is distinctly the best exhibition of the kind that has been held in New York City. The convenience and excellence of the galleries, the number and variety of the exhibits, the large proportion of foreign work, differing from that which we are accustomed to see in so many respects, all these things make it a notable event in the photographic chronicles of Gotham. This is not saying that the exhibition is an ideal one, or that it fairly and fully represents the photography of to-day in all its branches; this it does not; but, nothwithstanding, there is much to be learned by any earnest student

from the work shown, some of which is of the very highest character.

The frames are hung in the main and annex rooms of the Fifth Avenue Art Galleries, and number something over five hundred, besides which there are fifty sets of lantern slides (six in each set) and nine transparencies. The frames contain between twelve and thirteen hundred separate prints. This number of frames and prints is about that which the last two or three exhibitions have offered.

There are also four exhibits of apparatus. The number of exhibitors is 123, of whom 40 owe allegiance to the New York Society, 17 to Philadelphia, 11 to Boston, and 30 are claimed as "foreign;" the remainder are from various localities, Lowell, Washington, Syracuse and Yonkers being represented.

The Judges, Messrs. Thomas Moran, Will N. Law and Edward Bierdstadt, awarded medals to H. P. Robinson, J. P. Gibson, F. M Sutcliffe, Adam Diston, F. P. Cambrano, C. Cours Cole, Martin J. Harding, Richard Keene—all Englishmen; W. H. Jackson, of Denver, Col.; Charles I. Berg, New York; Alfred Stuglitz, New York—all members of the Society of Amateur Photographers of New York; Robert S. Redfield and Alfred Clements, of the Philadelphia Society; George A. Nelson, Lowell Camera Club; James L. Breese, New York Camera Club; E. H. Lincoln, of Cambridgeport, Mass., and John H. Tarbell, of New York, unattached; and in lantern slides to Miss Catharine Weed Barnes, of the Society of Amateur Photographers of New York; Charles Mitchell, of the Philadelphia Society, and George H. Wilson, of Edinburgh, Scotland.

The excellent catalogue of a hundred pages gives in such detail the particulars concerning the pictures and their makers and the titles they bear, that it would be largely a work of repetition to attempt the full description of all the pictures, or to merely cite the names of the exhibitors, even did our space permit, so that we will attempt only a few words of comment on the pictures that attracted personal attention from the writer, in his journey around the rooms.

No. 7.—"The Village Mill," by Chas. H. Miller, is familiar to TIMES readers, from the phototype from this negative, recently published as a frontispiece; but of course the original has beauties that no mechanical copy can quite equal. Nos. 19–22, bromide enlargements, by James L. Dillon, Philadelphia, are excellent; No. 20, "Lookout at Ragged Edge," being particularly effective, and with sky very well printed in. The eighteen frames (Nos. 23 to 41) of Mr. Clarence B. Moore, of Philadelphia, showed much thought and great activity; more care in selection and more definite purpose would be an improvement. "A Hot Day," in frame 34 (*a*) gets a very fine touch from the dog who lies in the background, with open, panting mouth, watching his master whet a scythe. Mr. Redfield's prize-winner, No. 65, "Mending Their Ways," is an excellent study of cattle and their attendants, who have paused in their occupation of road-mending. No. 63, "A Berkshire Hillside," is beautiful in its soft and effective distance. These are both platinotypes, as are those of Messrs. Bullock, Pancoast and Clements. Nos. 66, "Backward as Far as the Eye can See," and 70, "Four o'clock Tea," are the gems of Mr. Bullock's prints. "A Letter from my Boy," No. 72, by Mr. Pancoast, is a careful and effective bit of work. Mr. Clements gets an award for 86, "A Roadside Bit, Surrey, England," and 88, "There's no Place Like Home," platinotypes in his customary excellent manner.

Two portrait studies by John C. Lee, Brookline, Mass.—No. 108, an Italian street boy, and 109, a young musician, are unusually good, and deserved recognition. Nos. 111 and 112 contained interesting flower studies, printed on plain silvered paper. No. 117, a yacht picture in Mr. H. A. Latimer's exhibit, is quite spirited.

In the frame of genre pictures, No. 161, by Mr. and Mrs. W. J. Aulkner, Arbroath, England, the print marked *c*, "Ambition," is very natural in pose and pictorial in subject, representing an old sailor and a young boy discussing the rig of a toy ship, across a table. Frank M. Sutcliffe gets an award for Nos. 162–165, containing some thirty prints, in his well-known and happy manner. Nos. 167 and 171, by Adam Diston, are prize pictures, done in the studio, with no end of accessories. but intelligently and successfully used. "Gloaming" shows a woman lighting a lamp; while the "Smithy" has all the mechanical litter suggested by the name, with an interesting smith, and a prospect out of a window, cleverly printed in.

The awards to Mr. J. P. Gibson's prints, "Weary" (No. 176, *i*) and "Far from the Madding Crowd" (177, *o*), have been rather strongly criticised, and it is not easy to see just what exceptional merits they possess. But this cannot be said of H P. Robinson's exquisite work, "Forget-me-nots" (179, *g*) and "Shades of Evening" (180, *k*), to which words can scarcely do justice. Harry Symonds' yacht pictures are very spirited and well chosen (Nos. 181–2), and are the best examples of instantaneous work shown.

Two prints (252–3) by Mrs. R. W. De Forest, "After Millet" (from nature), have very artistic

qualities. A study from life, entitled "Fatime," the pose and drapery being after the painting of N. Siehel, is exceptionally successful, and reflects credit on Mr. Leaming.

Mr. Grindale's frame of 23 views in Bronx Park is full of interesting bits, and a fine example of excellent silver printing. W. H. Jackson's beautiful "Panorama of the Palisades" (287) and "Rice Creek" (290), richly deserve the award they received. Mr. Alfred Steiglitz's "Portrait of Professor Vogel," in platinotype, is exceedingly fine, closely resembling a steel engraving in effect; and with 317, a figure study, secured him a medal.

Mr. George A. Nelson's "Village Blacksmith" (376) and four subjects in No. 380, are very careful and successful things, the "Village Cobbler" being especially good. Mr. Tarbells' 405 ("Salting Fish, Whitley") is a well-studied group such as may be found in many fishing villages in this country as well as Europe. Five character studies by John E. Dumont, of Rochester, are excellent, albeit somewhat carelessly framed.

The portraits shown by Mr. J. L. Breese are all excellent, from the professional photographer's standpoint, but still leave something to be desired so far as artistic feeling is concerned. The backgrounds are somewhat disturbed by folds and lines, but the posing and lighting are both good.

No. 438, "White Clover," by Mr. W. W. Renwick, is very charming in its humble way; and scarcely less so are his apple and cherry and other blossoms (435), these latter being more beautiful than the flowers in Mr. E. H. Lincoln's 439, which got a medal.

The height of photographic art in one direction seems to have been reached by Mr. F. P. Cembrano, in his series (476–81) of platinotype prints, which might be easily taken for etchings, so rich and velvety are the blacks, so soft and harmonious and mysterious is the drawing. No work approaching this has been done in this country as yet. We hope the sight of this will prove a stimulus.

These hasty notes may serve to remind some who saw the pictures of their points. They do not begin to do justice to the excellencies of many, many examples of conscientious, pains taking work. As such, let them stand.

A final word to record the faithful and earnest labors of the Exhibition Committee, Messrs Bealt, Roumage, and A. L. Simpson, is their due, and is most heartily tendered.

Hypo.

She Set Him Thinking.—He—"That picture up there represents my grandfather at the age of thirty. As you see, his reputation for having been a handsome man was well deserved."

She—"Your grandfather? Why, you don't look the least bit like him!"

THE TONING OF PHOTOGRAPHS CONSIDERED CHEMICALLY, HISTORICALLY, AND GENERALLY.

CHAPTER IX.

MODERN IDEAS ABOUT THE CHEMISTRY OF TONING.

Meldola upon Toning.—In the admirable series of lectures on the "Chemistry of Photography," delivered at the Finsbury Technical College, London, in 1888, and reprinted as a book (published by Macmillan & Co., London, and sold by the Scovill Co.) in 1889, we get the ideas upon the chemistry of photographic toning held by one of the first of modern chemists.

When chloride of gold is dissolved in hydrochloric acid, a compound named chloro-auric acid is formed, thus:

$$AuCl_3 + HCl =$$

Chloride of gold *combines with* hydrochloric acid *to form*

$$HAuCl_4$$

chloro-auric acid.

This chloro-auric acid is obtained in yellow crystals when the solution is evaporated. The chemical composition of these crystals is $HAuCl_4 4H_2O$. These crystals are deliquescent, and when they are dissolved they yield an acid solution, which must be neutralized with powdered chalk before it can be used for toning.

The "chloride of gold" usually kept by dealers in photographic chemicals is not, however, the above salt, but a double salt, $NaAuCl_4, 2H_2O$, which is obtained by adding a solution of common salt to auric chloride, and then evaporating the liquid to the crystallzing point. This double salt is evidently the sodium salt of chloro-auric acid, and may therefore be called sodium chloro-aurate; it is neutral and non-deliquescent.

Toning consists in so using this sodium chloro-aurate as to "deposit on the darkened portions of the (unfixed) print a finely precipitated powder of reduced gold, which changes the reddish color of the mixed reduction products * into the tone so familiar in finished silver prints."

To insure the neutrality of the toning-bath we mix with the gold chloride various substances, such

* These "reduction products" are those resulting from the action of the light upon the silver chloride and silver albumenate with which the sensitized paper is coated. According to one theory they are "subsalts" of silver; according to another, metallic silver.

as chalk, borax, or several salts of sodium—as the carbonate, bicarbonate, or acetate.

Now gold is "reduced" to the metallic state with great ease from a neutral or alkaline solution. Let ferrous sulphate, for example, be added to a ready-made toning-bath, and the gold is at once precipitated as a blackish powder on the bottom and sides of the vessel in which the experiment is performed:

$2AuCl_3 + 6FeSO_4 = Au_2 + Fe_2Cl_6$
Gold chloride *and* ferrous sulphate *produce* gold *and* ferric chloride
$+ 2Fe_2(SO_4)_3$
and ferric sulphate.

Now the "reduction products" (whatever their exact nature may be) present in the untoned print are ready—and able—to play the part of reducing agents. They decompose the gold salt, and attract the gold toward themselves. The *unaltered* silver chloride, etc., possess no such power, and therefore the white parts of the print remain untoned.

Hyposulphite of soda is a powerful reducing agent, and if a very small quantity of it gets into the toning solution it will combine directly with the chloride of gold, and prevent its precipitation upon the image. Hence the fixing bath ought always to be kept at a considerable distance from the toning bath; and after the hands have touched "hypo" they should be well washed (and a brush used to dislodge any of this deleterious chemical which may have got under the finger-nails) before they are permitted to handle the prints which are in the toning bath.

Thus the toning bath may be considered "as containing a potential deposit of metallic gold ready to be precipitated on any reducing surface that may be bathed by it." The only "reducing surface" which we should allow to come in contact with the gold solution is the surface of the print which we are desirous of toning.

Why the Toning Bath should be Prevented from becoming Acid.—Free hydrochloric acid in a toning bath acts as a restrainer, preventing the deposition of gold, or allowing it to be deposited so slowly that it appears as the *red* form of the gold molecule; whereas to change the tint of the print (which is red to begin with) we desire the molecule of gold to reflect *blue* light, and to do this the gold must be deposited more rapidly.

Now free hydrochloric acid is often present in commercial chloride of gold; and it is almost always produced during the reduction of the gold chloride by the combination of chlorine with hydrogen. Thus for example:

$AuCl_3 + 3H_2O = 3HCl +$
Gold chloride *and* water *produce* hydrochloric acid *and*
Au_2O_3
Gold trioxide.

This trioxide of gold is a very easily decomposed substance, and its formation is possibly always an intermediare stage between the decomposition of the gold chloride and the actual deposit of metallic gold on the print.

To neutralize the ill-effects of this free hydrochloric acid is the function of the sodium acetate, carbonate, or other salt which is added to the toning solution. It effects this by combining with the hydrochloric acid, the result being the formation of a soluble chloride and of some weak acid—such as acetic acid or carbonic acid—whose presence is harmless:

$Na_2CO_3 + 2HCl = 2NaCl$
Sodium carbonate *and* hydrochloric acid *produce* sodium chloride
$+ H_2CO_3$
and carbonic acid.

Why Prints Look Weak After Toning.—Almost every instruction book on photography contains a direction to "overprint, to some extent, because the image is weakened by the subsequent operations in the toning and in the fixing baths." We must now consider why a print should lose any vigor because of the chemical action of the toning bath. Abney writes:*

"Supposing a (silver) print to be thoroughly washed, and immersed in a dilute solution of gold trichloride, the following phenomena would present themselves: the picture would gradually bleach, and a blue deposit would take the place of the more vigorous red image, and, on immersion in the fixing bath, the print would be of the most feeble character."

The reason of these changes is this: The chlorine (liberated) from the gold chloride would attack the silver subchloride of the print, and—while depositing metallic gold—would in reality convert the subchloride forming the image back to the state of chloride.

$3Ag_2Cl + AuCl_3 = 6AgCl$
Silver subchloride *and* gold trichloride *produce* silver chloride
$+ Au$
and gold.

In this case we see that a single atom of gold has displaced *six* atoms of silver. Of course the single gold atom cannot "make as much show" as the six atoms of silver did, and the print consequently looks very much weaker after toning in such a bath than before.

For this reason we add some substance to the toning bath which shall have an equal or greater attraction for the chlorine liberated from the gold chloride than the silver subchloride has.

This brings us to the consideration of another way of classifying toning baths, viz., into—

* "Instruction in Photography," p. 262.

(*a*) Toning baths in which all the free nitrate of silver is removed from the print before toning.

(*b*) Baths in which it is an advantage to leave a little free silver nitrate in the sensitized paper.

The acetate bath is a good example of the first of these divisions. Sodium acetate has a stronger affinity for the chlorine contained in the gold trichloride than the silver subchloride of the print has. Thus the subchloride is not attacked by the chlorine ; and as a result there is little dimunition in the depth of the print by the subsequent fixing bath.

In the ordinary "lime bath" we have what is called "chloride of lime," but which is really a *mixture* of calcium chloride ($CaCl_2$), with calcium hypochlorite ($CaCl_2O_2$). The latter of these two substances acts as a "retarder," preventing the too rapid decomposition of the gold chloride. If prints are *thoroughly* washed and placed in bath containing nothing but gold chloride and chloride of lime, they will tone very slowly and irregularly.

If a silver print be washed but a little (so that some free silver nitrate is left in it), and placed in a solution of plain chloride of gold, the toning will be *too rapid* to be under control.

But when we get the gold, the lime, and the silver nitrate all together, then toning takes place at the proper rate and in a regular manner.

The function of the silver nitrate is to combine with the chlorine liberated by the decomposition of the gold chloride :

$AgNo_3 + Cl_2 = AgCl + HNO_3$

Silver nitrate *and* chlorine *produce* silver chloride *and* nitric acid

$+ HClO$

and hypochlorous acid.

Thus the chlorine is prevented from attacking the silver subchloride of the print.

W. Jerome Harrison.

(*To be continued.*)

ON EIKONOGEN COMPARED TO HYDROCHINON.

[Translated from the *Bulletin de la Societe Francaise de Photographie* for THE TIMES, by P. O. D.]

GENERALITIES.

Is eikonogen really a well defined body? If one accepts what has been said on this question, its chemical constitution would be much like that of hydrochinon and pyrogallic acid. For my own part, I do not willingly accept this hypothesis, and would be rather inclined to think that eikonogen is a salt. If one treats a solution of eikonogen at 1 per 100 by a few drops of an acid (nitric, acetic, etc.), the liquid will soon form into a crystalline mass ; by agitation, the crystals will separate and be deposited as fine white needles, the supernatant liquid being violet. Is not that one of the characters of the salts formed by an insoluble acid, which follow the law of Bertholet : the displacement of an acid by an acid? This fact is not evidently sufficient for concluding, but it seems to me that there is an indication.

Whatever its constitution may be, eikonogen is a white friable crystalline body. Dry, it evolves a smell resembling both that of acetic acid and of chloral. The vapors emitted are acid and redden litmus paper. When dissolved the solution is neutral, without appreciable odor, and having a taste resembling that of the sulphites.

It is a body very avid of oxygen, and, on account of this property, it is used in photography. But before proceeding further, it is well to fix the ideas on these words : Avid of oxygen. Pyrogallol and hydrochinon are also avid of oxygen, but not, however, in the same manner as eikonogen. While the two bodies in question are well oxidized only in presence of an alkali, eikonogen, on the contrary, oxidizes as well in a neutral or alkaline, as even acid solution, and this with such an energy as is quite impossible to keep in solution in well closed vials. This property necessarily designates it as a powerful reducing agent capable of rendering real services in photography. However, as I will demonstrate further on, eikonogen is far from presenting the same capacity of oxidation (if I can thus express myself) as hydrochinon.* Although very avid of oxygen, is is rapidly saturated and its power of reducing is about one-quarter that of four times more rapidly exhausted.

Hence, from the fact that a body is avid of oxygen, one should not make haste to conclude that it is superior, as a developer, to another apparently less avid.

In the study I have made of eikonogen, I have followed the same method as for that of hydrochinon, and in my experiments I have always employed gaseous oxygen under pressure. About this I shall remark that the results which one would obtain by the atmospheric oxygen—that is with the air—would not be comparable between themselves, not even to the former, for a solution of eikonogen or of hydrochinon compounded with sodium sulphite, which remains colorless under the prolonged action of gaseous oxygen, is nevertheless pretty rapidly colored in contact with the air. This oxidation should be very likely attributed to ozone, whose power is comparable to that of nascent oxygen.†

ACTION OF OXYGEN.

I have said that eikonogen is very avid of oxygen ; in fact, a solution at 1 per 100 exposed to the air is soon colored blood-red in passing by intermediate tints.

Action of the Alkalies.—The presence of an alkaline carbonate or of a caustic alkali favors the oxidation of eikonogen. Such a solution agitated in contact with the air instantaneously reddens.

Nascent Oxygen (*AgO*).—The same phenomenon occurs in presence of silver oxide, or any other body capable of giving up nascent oxygen. The oxidation of eikonogen is instantaneous, and a deposit of black metallic silver is thrown down.

Silver Carbonate.—Same action with a carbonate formed by an oxide easily reductible, such as silver carbonate.

* In this work I will only compare it to hydrochinon, not having constated myself any fact to allow me of comparing it to pyrogallol.

† I had no time to verify this fact. I think that there it is a series of interesting experiments to make.

Silver Nitrate (*reduction in acid solution*).—Contrarily to hydrochinon, eikonogen reduces nitrate of silver. The presence of the nitric acid liberated does not at all interfere with the reduction, the liquid becomes muddy and greenish. Furthermore, if one pours eikonogen on a few cubic centimeters of a solution of silver nitrate, 1 : 50 acidified by acetic or nitric acid, the reduction of the silver nitrate is instantaneous,

There is, however, a limit to the reduction in acid mediums, for when one operates with concentrated solution, a moment arrives when the nitric acid set free, being sufficient to dissolve the silver precipitated, the latter will remain in solution, no more being drawn down.

Insoluble Silver Salts (*chloride, bromide, iodide*). On the insoluble silver salts (chl., br., iod.) the effect is not the same, and eikonogen *alone* is upon them without action. However, the reduction instantaneously occurs when an alkali (carbonate or caustic alkali) is added to the liquid; it also takes place, but more slowly, by the simple addition of sodium sulphite.

To resume. *At a photographic point of view, the characteristics of eikonogen are its great affinity for free oxygen ; its power to reduce silver solution in acid solution, and the insoluble silver salts without the intervention of the alkalies, and the sole concourse of the sulphite of sodium.*

A priori, it is evident that eikonogen will form two kinds of developers the alkaline developers: which will be energic, and the simple developer, without alkali, where it will be simply associated to a sulphite.

I will, therefore, study eikonogen simultaneously in these two points of view.

I.—Determination of the Reductive Power of Eikonogen.

(*Equivalence, related to silver nitrate, 1 gram.*)

The dosing is made by the same method which I have employed for hydrochinon,* that is to say, reduction by the silver oxide corresponding to 1 gram of silver nitrate dissolved in 5 grams of sodium sulphite and 50 c.cm. of distilled water.

The operation being conducted in the same manner, I obtain the results which give me this equivalence:

Silver nitrate	1
Eikonogen	0.33

Which signifies that: *Eikonogen* 0.33 *are necessary and sufficient to completely reduce silver nitrate* 1 *gram.*

II.—Quantities of Alkalies and of their Carbonates Corresponding to a Given Quantity of Eikonogen.

A simple calculation of the chemical equivalents gives the following proportion:

Silver nitrate	1 gram
Is equivalent to	
Caustic potassa	0.33 gram
Caustic soda	0.2353 gram
Potassium carbonate	0.4064 gram
Sodium carbonate	0.8411 gram

Hence, to 0.33 of eikonogen will be added one of the above alkaline compounds in the proportion of the table.

III.—Determination of the Quantity of Sodium Sulphite Necessary and Sufficient to the Perfect Action of a Developer with Eikonogen.

As it is easy to foresee, sodium sulphite prevents or retards, at least in certain limits, the oxidation of eikonogen by free oxygen. The fact is known—I need not demonstrate it; moreover, I have spoken of it with some details apropos of hydrochinon.

However, the presence of that body by no means prevents the oxidation of eikonogen by nascent oxygen; on the contrary, it seems to exalt it. The fact that eikonogen finds in presence of sodium sulphite the necessary energy to reduce to metallic state the insoluble silver salts which, alone it is powerless to reduce, is it not a proof of what I advance?

Therefore, it is quite necessary of adding to eikonogen a body which, as sodium sulphite, renders it in a certain measure unalterable in the air.

To determine the necessary and sufficient proportion of sodium sulphite, I have devised a series of experiments identical to those I have made with hydroquinon, that is to say, in a solution of:

Eikonogen	0.33 gram
Potassa	0.33 gram
Sodium sulphite	0.33 gram
Distilled water	22 c.cm

I have successively increased the proportion of eikonogen and of sulphite to $\frac{1}{1}$, $\frac{1}{2}$, $\frac{1}{3}$, ... $\frac{1}{9}$, $\frac{1}{10}$, etc., and in each one of these solutions I have passed during one hour a stream of oxygen, and taken note of that which finally remained colorless or slightly yellow. I have made over these experiments in replacing caustic potassa by sodium carbonate, and another series of the same with eikonogen without alkali. I will not describe the details of the opertions, which are already known and not instructive, but give at once the results I have obtained :

1. *Whether an alkali or a carbonate be added to eikonogen, the quantity of sulphite should be the same in both cases and equal to ten times that of eikonogen.*

2. *When eikonogen is alone—without addition of any alkali whatever—for one part of eikonogen five parts of sulphite will be necessary.*

Summary.—From this are derived the two following formulas, each one having in especial cases its advantages :

1. Alkaline Eikonogen Developer.

Eikonogen	1 part
Alkali	in proportion
Sodium sulphite	10 parts
Distilled water	quant. suff.

2. Simple Eikonogen Developer.

Eikonogen	1 part
Sodium sulphite	5 parts
Distilled water	quant. suff.

Conclusion.

Now comes the following question :

To which of the two products should one give the preference for the choice of a developer—will it be hydroquinon or eikonogen? For me, hesitation is not possible. To well understand the difference between the two, it is first important to render them comparable. In fact, how can one venture to form a judgment if the formulas upon which are made his observations cannot be compared between themselves? There is there *un écueil*, which have

* The dosing might be done by the direct reduction of silver nitrate by eikonogen, if there were not a moment where the nitric acid liberated, by interfering with the precipitation of the metallic silver, did not alter the final result.

† For the details of the operation, and, also, for those of the experiments which follow, see my work on hydrochinon.

(Published in The Times.)

given rise to many contradictory judgments, which I hope I have succeeded to avoid.

Hence, I propose to take as a point of departure the respective quantities of hydroquinon and of eikonogen corresponding to one gram of silver nitrate. Starting from this, we will have the two following formulas parallel and comparable between themselves, in which I will take for alkali the carbonate of potassium, since it seems to be adopted in most of the formulas of an eikonogen developer.

Hydroquinon	8
Potassium carbonate	40
Sodium sulphite	40
Distilled water: 1 liter (for example).	

Ekinogen	33
Potassium carbonote	40
Sodium sulphite	330
Distilled water: 1 liter (for example).	

Their examination suffices alone to demonstrate the inferiority of eikonogen. These developers both possess the same reductive power, but while in the first there is only 8 grams of hydroquinon, in the second 33 grams of eikonogen are necessary to produce the same work.

In the first we use 40 grams of sodium sulphite, while in the second 330 are necessary to keep at the same point the inalterability of eikonogen. Of course one could reduce the proportion of sulphite and compound the bath with four or five times that of eikonogen, as in the empirical formulas generally published, but then the bath would not keep, and after having been now and then exposed to the air, as it happens necessarily during the development, it will be promply altered and of no use.

However, it should be remarked that the action of eikonogen is more rapid than that of hydroquinon; in the future it will be deprived of the last prestige, for hydroquinon is susceptible to equal and even surpass it in rapidity, without losing any of the solid qualities which cause it to be so justly appreciated.*

Lastly, I will add that I would be gratified to see my conclusions, which, for many persons, may have appeared too exclusive and theoretical, discussed and sanctioned by the practice. As to me, by applying the ideas which I have just set forth, I have succeeded to compound a developer with hydroquinon possessing a very satisfactory rapid action and excellent keeping qualities.

H. Reeb.

Notes and News.

C. Gentile, editor of *The Eye*, of Chicago, was in New York last week, and reported a prosperous condition of affairs in the city of the World's Fair.

Austin Edwards, son of B. J. Edwards, of London, England, called upon us last week. He is on his return trip to England.

The World's Fair, in Chicago, has thus far neglected photography in its arrangements. No department devoted to this important art and industry has as yet been arranged for.

* See on this subject my study on hyroquinon.

Appreciation.—"Enclosed I hand you a draft for $5, in payment of my subscription to THE PHOTOGRAPHIC TIMES. I am invariably delighted with each succeeding issue. Yours truly, E. M. BRAY."

David Tucker, senior partner of the well-known firm of photographic merchants, Tucker & Butts, of Buffalo, started on an extensive trip to the Pacific Coast, Monday evening, May 25th, accompanied by his accomplished daughter, Miss Mary G. Tucker. Mr. Tucker's health has not been good for some time past, and he takes this trip principally with a view to improve it.

A New Camera Club was organized on the 15th of May, at Gloversville, N. Y., and the following officers were elected: President, S. F. Davis; Vice-President, F. H. Wilmarth; Secretary, J. B. Tuckerman; Treasurer, H. J. Talfourd; Executive Committee—F. Girard, George Fort, Charles Gardner; Committee on Rules—F. H. Wilmarth, H. C. Alvord, G. B. Rowland.

The International Exhibition of Photographs, held under the auspices of the Vienna Photographic Club, was opened May 2d, under the most propitious circumstances. Though more than four hundred exhibitors had applied for admission for their work scarcely half of that number of exhibitions were admitted. The standard of entrance was very high indeed. We understand that no American photographs were included in those admitted to the exhibition. A subsequent exhibition has been arranged for, however, in which the work not shown in the first exhibition may be displayed to the Viennese public.

Ancient Weights and Measures.—The jewelers of the middle ages used in their delicate scales the hard brown seeds of the Moorish carob tree (Ceratonia siliqua), and the weight of diamonds is still reckoned by carats, each carat being equal to $3\frac{1}{6}$ grains troy. The earliest attempt to regulate British weights and measures appears to have been suggested by this example:

In 1266 it was declared by statute that "an English penny, called a sterling, round and without any clippings shall weigh thirty-two wheat corns in the midst of the ear; and twenty pence do make an ounce, and 112 ounces one pound, and eight pounds do make a gallon of wine, and eight gallons of wine do make a London bushel, which is an eighth part of a quarter. We have here the basis of the British system of reckoning as it survives to-day—the grain, pennyweight, ounce, pound, gallon, bushel and ton, and 240 silver pence equal to a pound sterling. The British gallon is still used for both dry and liquid measure, and the traditional relation between the pound and the gallon is set forth in the old rhyme, which declares that

A pint's a pound
The world around.

In 1324 the measures of length were defined by a similar statute providing that "three barley corns, round and dry, laid end to end," shall make one inch, twelve inches a foot, and three feet a yard. The thirty-two wheat corns, adopted as the basis of the British system, appeared to have weighed $22\frac{1}{2}$ grains troy, so that the pound of 1266 was equal to 5,400 grains troy. This is the old Saxon pound. The pound troy (poud de roy) is the Roman pound, and was doubtless in use simultaneously with the

Saxon pound for hundreds of years, but is first mentioned in the statutes of 1414, and was ordained as the standard weight for gold and silver in 1527. As twenty-four grains make a pennyweight troy, the new pound contained 5,760 grains, exceeding the old weight by 360 grains, or three-quarters of an ounce. The strict pound of twelve ounces was used only in weighing the precious metals, and with different subdivisions, for the costly drugs and medicines dealt out by apothecaries. For heavy goods (avoirs du poids) a more liberal measure was given, like the baker's dozen, and fifteen ounces were called a pound. In the same way twenty-eight pounds were called a quarter, and 112 pounds a hundredweight, allowance being made for waste of wrappings. The increase of the pennyweight to twenty-four grains in 1527 raised the value of the ounce to 480 grains; and accordingly the pound of commerce, containing fifteen ounces, was raised to 7,200 grains, as 250 grains of wine were reckoned equal to a cubic inch, the gallon, containing eight of these pounds, or 57,600 grains, had a capacity of 230.4, or in even numbers, 231 cubic inches. This is the wine gallon now in use in the United States. The ale or beer gallon, of 282 cubic inches, was originally a measure containing eight pounds of wheat at 204 grains to the cubic inch. The name avoirdupois was transferred at a very early date from the heavy goods, which it indicated, to the system by which they were weighed. It occurs first in the statutes of 1335 and 1353. The early pound of fifteen ounces of 450 grains each (5,750 grains) was raised by law, as has been shown, to 7,200 grains, making sixteen of the old ounces. In practice, however, the pound seems to have fallen below the standard to about 7,000 grains, and this weight was finally declared to be a pound avoirdupois, the avoirdupois ounce, or sixteenth of the pound, being thus reduced to 437½ grains.—*Harper's Magazine.*

Correspondence.

INCREASING POPULARITY OF LANTERN SLIDES.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Mr. Philip S. Carlton, one of the members of the Oakland Camera Club, demonstrated before the club, Tuesday evening, May 19th, "The Cold Platinum Process." The past meetings of the society have been well attended, owing to there being at our meetings an exhibition of lantern slides, but the slim attendance at the last meeting shows sadly the inclination of the members—that they would prefer to see an interesting exhibition on the screen, rather than an equally interesting demonstration of a photographic process.

Very truly yours.

Sam C. Partridge.

SAN FRANCISCO, May 21, 1891.

THE ALBUMEN PROCESS.*

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I have just seen the very true remarks of your writer in your issue of May 1st, concerning the albumen process. Some time ago I became aware of the gravity of my omission of this process from several of my works—notably that on lantern slides—and I set about working up this process with results most satisfactory to myself. In my second edition of the book on slide-making, now in press in England, I have put a pretty full account of the process, and if acceptable to American readers, I shall be glad to write for them instructions as full and as trustworthy as I am able to produce; for I use the albumen process now when I wish the very best slide I can produce regardless of the time taken.

I will begin these articles at once, and send you the whole when complete. Thanking your editorial writer for his hint, and with best regards to yourself, I remain,

Yours very truly,

Andrew Pringle,

CROMWELL HOUSE, BEXLEY HEATH, S. E., ENGLAND,
11th May, 1891.

* This communication was unavoidably crowded out of the preceding issue.—*Editor of* THE PHOTOGRAPHIC TIMES.



Rule 3 governing Stock Department, Buffalo Convention, will be changed to read as follows:

The Art and Stock Departments will be opened each day at 11 o'clock A.M.

This change also necessitates calling the business meetings to order at 9 o'clock A.M., and it will be done if there be a quorum present.

This change has been decided upon because there has been so much trouble in getting the members and dealers to stop their trading and sight-seeing in order to commence the business meeting at 10 o'clock, as previously required.

George H. Hastings,
President P. A. of A.

Photographic Societies.

THE AMERICAN PHOTOGRAPHIC CONFERENCE.

THE First Annual Meeting of the American Photographic Conference was opened Monday evening, May 25th, by a private view of the joint exhibition of the New York, Philadelphia, and Boston societies at the Fifth Avenue Art Galleries, a review of which is given our readers in another place. Tuesday morning a meeting of the council was held at No. 13 West 38th Street, followed by the opening session of the Conference, at which one or two papers were read, and some other matters considered.

A Conference lantern slide interchange was formed among the clubs. A report of the Treasurer, Mr. W. H. Drew, was made, showing a balance of $400 in the treasury. The President, Dr. Ely Van De Warker, stated that there were thirty-three clubs now represented in the Conference, an increase of fifteen since December last, when the organization was formed. At the Fifth Avenue Art Galleries in the evening Mr. Wallace Goold Levison delivered his illustrated lecture on Instantaneous Photography as an Aid to Science, History and Art.

The following officers were elected: President, Dr. Ely Van De Warker, Syracuse; First Vice-President, George Bullock, Cincinnati; Second Vice-President, Dr. George L. Parmele, Hartford; Secretary, T. J. Burton, New York, and Treasurer, W. H. Drew, Lynn, Mass. The council is composed of Miss Frances B. Johnson, Washington; Oscar S. Teale, Plainfield, N. J.; Professor Randall Spaulding, Edward Weston, Newark, N. J; Harry S. Fowler, Brooklyn; John V. L. Pruyn, Albany; C. R. Pancoast, Waterbury, Conn.; Cornelius Van Brunt, A. J, Thomas, Hoboken, and J. W. Alexander, Yonkers. New York City was chosen for holding the meeting again next year.

Wednesday morning the meeting was continued at the headquarters of the New York Society. One or two papers more were read and the delegates then adjourned. In the afternoon most of the delegates participated in the steamboat excursion in the harbor and bay of New York. In the evening there was held a lantern slide exhibition by the Brooklyn Academy of Photography, at the Criterion Theater, Brooklyn. At this exhibition a slide from one of the negatives in colors of the spectrum, taken by Professor Lippmann, was exhibited. Thursday morning other papers were read, and Thursday evening, at 7 P.M., the inaugural dinner at Clark's Restaurant was given.

DEPARTMENT OF PHOTOGRAPHY OF THE BROOKLYN INSTITUTE.

AT the annual meeting of the department of photography held in the lecture room of the Y. M. C. A. building, 502 Fulton street, Tuesday evening, May 19, the following officers were elected for the ensuing year: For President, George H. Cook; Vice-President, George W. Banker; Secretary, Gould W. Hart; Treasurer, P. L. Le Brun; Curator, Dr. Lewis E. Meeker.

ST. LOUIS CAMERA CLUB.

THE following prizes are offered for excellence in work done on the Annual Field Day, 1891.

BY A. S. ALOE & CO.

1. For the three best pictures taken on the Field Day, one each of the following subjects: *a*. Best instantaneous view of moving objects. *b*. Best landscape. *c*. Best group of members of the club. *Prize.*—A. S. Aloe & Co.'s 5 x 8 R. R. Lens, with Iris diaphragm.

2. For the second best three pictures of the same subjects, a Bausch & Lomb Diaphragm Shutter, to be fitted to the winner's lens, size not to exceed 6½ x 8½, model 1891.

BY M. A. SEED DRY PLATE CO.

1. For the best single *genre* picture, size not considered, posing and all of the work to be done by the competitor. $10 worth of plates.

2. For the best set of three instantaneous pictures, with the negatives. $10 worth of plates.

3. For the best positive made on films. $10 worth of plates.

4. For the best transparency on any plate, tone and subject to be considered. $10 worth of plates.

BY G. CRAMER DRY PLATE WORKS.

1. For the best six pictures, with negatives, taken on the Field Day. $10 worth of plates.

2. For the second best six pictures, as above. $5 worth of plates.

3. For the best six prints on albumenized paper, using any negatives. $3 worth of sensitized paper.

4. For the best three lantern slides, from field-day negatives. $2 worth of sensitized paper.

BY MR. J. C. SOMERVILLE.

1. For the best six bromide prints of Field Day negatives. $20 worth of bromide paper.

2. For the second best six, as above. $10 worth of bromide paper. All competing prints go to Mr. Somerville as his property.

BY MR. H. A. HYATT.

For the best single *genre* picture, made on the Field Day, a Mound City 6½ x 8½ landscape lens. Mr. Hyatt is to receive a copy of each competing picture.

BY A. P. EIKER & BRO.

For the three best lantern slides from Field Day negatives. A fine focusing glass.

All work, unless otherwise mentioned, must be entirely done by the competitor himself, from his Field Day negatives.

The Annual Field Day will take place on Saturday, May 30, 1891, at Meramec Park, on the Frisco Railroad. Train leaves the Union Depot (special car attached) at 8.10 A.M., stopping at Grand Avenue at 8.20. Returning, train leaves Meramec Park at 5.10 P.M., arriving at the Union Depot at 6. Expenses will be shared equally by those who attend.

Be good enough to *sign* and *mail* the enclosed postal card, properly filled out, *at once*. It is absolutely necessary that we should know, *in advance*, how many must be provided for.

Dinner will be provided at Meramec Park for those who attend, without any charge. For this we are indebted to the courtesy of Mr. Bernheimer.

A circular of information as to *prizes* for the best work done on the Field Day is enclosed. A very large attendance is expected.

By order of the President.

W. M. Butler,
Secretary.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting was held on Wednesday evening, May 13th, 1891, the President, Mr. John G. Bullock, in the chair.

The President announced the appointment of the following gentlemen as a special committee to take into consideration the feasibility of starting a movement looking to a uniform method of marking the sensitiveness of dry plates: Messrs. Charles R. Pancoast, Coleman Sellers, Frederick Gutekunst, Thomas H. McCollin, and William H. Raw.

Mr. John Carbutt exhibited a Watkins exposure meter which he had brought for examination, as promised at the last meeting. He had tested the meter that morning, and it seemed to agree with the one he had previously used, which had been brought over by a gentleman living in the west, who desired him to rate his plates to work with it, if possible. The maker of the instrument had attempted to give some scale by which American plates could be used, but as far as it related to his (Mr. Carbutt's) plates, it was very far from being correct. Various negatives were shown to the members by Mr. Carbutt, illustrating his trial of the instrument, the conditions under which they were exposed being fully described. His opinion was that the meter was practically correct, provided the sensitiveness of the plates used was known, and this would have to be ascertained by the operator, as there was no correct guide given. A man would have to use judgment in its use.

The Chairman inquired if one would not have to use as much judgment in its use as was required in exposure by the ordinary method?

Mr. Carbutt said that the instrument did what was claimed for it. It saved the wasting of plates. In regard to the pendulum attachment, for his part he would prefer not to use it, because with our strong sunlight it would puzzle a great many to watch both the pendulum and the sensitive paper at the same time. The instrument had this value, that it would enable them to estimate the quality of the light better than the eye could, especially at this season, when the light is so changeable.

Mr. Hand said he had examined one of these instruments, and found that the indexing was wretchedly done. It was not in anywise accurate.

Mr. Carbutt said that in using this instrument, and in correspondence with the agent, he found they did not agree. Where the instrument he was using said such and such was the reading, he (the agent) said it could not be; hence their instruments were evidently different.

Mr. Stirling thought in that case one would require a series of comparative tables. When the thermometer was 32 deg., so much; when 70 deg., so much. Mr. Taylor suggested that it was something like Captain Cuttle's watch.

Mr. C. E. Hopkins was present for the purpose of exhibiting to the members specimens of Omega sensitized paper, and demonstrating the toning of prints made on that paper. Before doing so he exhibited a new shutter called the "Pneumo." The shutter, which was of the rotary type, could be placed either outside or inside the lens, and instantaneous or time exposures could be made at will. He claimed there was nothing liable to break or get out of order, and it was sold for a very low price.

Prints made on the Omega sensitized paper were next shown and toned by Mr. Hopkins. The paper is coated with a gelatine emulsion, and printed in sunlight, requiring about one-third less time than ordinary albumenized paper. A combined toning and fixing solution is sold for use with the paper, or a formula for preparing the same is furnished with each package. Unlike most ready-sensitized albumen papers, a satisfactory black tone can easily be obtained when desired, or by stopping the toning at an earlier point warmer tones are obtained. The print should be made considerably darker than the finished tone desired, and immersed in the toning solution without first washing, being left therein until the desired tone is obtained, and then well-washed in several changes of water. They may be mounted directly after washing, or can be hung up to dry or laid face up on blotting paper, care being taken not to place anything on top of the prints till thoroughly dry, as it would adhere to the gelatine surface. The print can be glacéd by squeegeeing them face down on a tintype plate. It was claimed that the paper was more permanent than albumen paper, and would not fade if properly used.

Mr. Bell took exception to the toning and fixing in one solution; the prints so treated were going to fade. In the olden time they were taught to tone separately and fix separately, if they desired to get permanent prints, and the mixture of the gold and hypo together looked as if they were going back to the old fading time.

Mr. Hopkins said he had not found this to be the case. The prints in the sample book shown them had been made for over a year, and they were just as good now as when they were first made.

The Editorial Table.

Ausfuhrliches Handbuch der Photographie. Second Edition. Vol I, part 2. Die chemischen Wirkungen des Lichtes. Spectral photographic and actinometric. By Dr. Jos. M. Eder. Wilhelm Knapp, Halle a/S, publisher.

As the second edition of this unique and complete work on photography progresses, we observe how much it has been augmented with reports on the newest researches and accomplishments made. The present part treats exclusively of scientific photography, and will be a highly instructive study for the progressive amateur or professional.

Through the kindness of Mr. Paul Nadar we have received a copy of the new venture which he has made in photographic journalism—the monthly *Paris Photographe*. He says in his introduction: "We have frequently heard regret expressed that there is in France no high-class journal devoted to photography. Nothwithstanding the interesting features of several of the photographic journals, we have been here behind other countries, and have had nothing that could be compared with American, English, Austrian, or Belgian publications, not to mention others."

Certainly nothing has been spared that would contribute to the sumptuousness of the new venture, which is a *quarto*, well printed on white paper.

The cover is well designed and artistically engraved; the initial letters are specially drawn with photographic subjects; there are two photogravure plates, beside several illustrations, in the text, and a folding *fac-simile* of the manuscript agreement between Daguerre and Isidore Niepce. The negatives were made in 1867, and since then the document has disappeared—a new proof of the value of photography.

The frontispiece is a portrait of Daguerre from a daguerreotype belonging to M. Nadar, the only criticism in which is, that it seems to be very much worked over in the reproduction, being much less satisfactory in that way than the Kurtz blocks in the ANNUAL for this year.

The articles are by "Marey," on the analysis of movements by photography, a note to which announces his success in securing microscopic chromo-photographs; a remin-

iscence of Balzac, from the unpublished MSS. of the late Nadar the Elder; a short paper on "Daguerre," by F. Hément; foreign correspondence, and other interesting and timely topics.

The price is in keeping with the luxurious character of the whole, being $5 per year, with postage extra, outside of Paris; 60 cents for the Postal Union, which shows what a sensation THE TIMES would make among the benighted foreigners should it appear among them with its 52 illustrations, and *weekly*. But this is a beginning, and we most cordially welcome the new comer to a high seat in the assembly of the photo-journalistic brotherhood.

If Carl Schurz's remarkable article on "Abraham Lincoln" is the first thing to which the reader naturally turns in the June *Atlantic*, it is not alone because it occupies the first pages of the number. It is fitting to give so interesting a survey of Lincoln's life and work the place of honor, and we think of no magazine article which has appeared for a long time which will command such attention, not only from its subject, but from the fact of its being written by Mr. Schurz. It is a review of the life of Abraham Lincoln, by Nicolay and Hay; and the result of their survey, which in the "Life" extends through ten volumes, is reduced by Mr. Schurz to about thirty pages of compact and interesting narrative, with a summing up of Lincoln's place as a statesman, and the work which he did in conducting the government safely through the perils of the civil war. One of the concluding paragraphs is worth quoting: "A few days after the fall of Richmond," says Mr. Schurz, "Lincoln pointed out to a friend the crowd of office-seekers besieging his door. 'Look at that,' said he, 'Now we have conquered the rebellion, but here you see something that may become more dangerous to this republic than the rebellion itself.'" And the concluding paragraph of the paper will always live as a most brilliant and striking characterization of Abraham Lincoln.

From W. H. Gardiner, of Chicago, we have received an interesting 6½ x 8½ photograph of game. The arrangement is certainly novel. A fox, a wild turkey, six partridges, three or four wild ducks, and an immense eagle, are photographed hanging from a tree. It is a picture to delight the eye of a sportsman, and might appropriately be called a "good bag."

The Honorable Francis Hendricks, of the well-known firm of photographic merchants, F. Hendricks & Co., of Syracuse, N. Y., sailed for Europe, Monday, June 1st. Mr. Gennert sails on the 18th.

Record of Photographic Patents.

452,859. Photographic Stand. Herman Vité, Berlin, Germany.

452,926. Photographic Camera. Marino Vega, New York, N. Y.

452,957. Rotary Index and Photographic Album. Benjamin Staunton, Douglass, Wyo.

452,966. Method of Producing Instantaneous Photographs. Wordsworth Donisthorpe, Bayswater, and William C. Crofts, Westminster, England.

Mamma (examining the proof of her small daughter's photograph)—"Grace, why didn't you smile?"

Grace (aged six years, with an injured air)—"I did, mamma, but the man didn't put it down."—*Harper's Bazar.*

Queries and Answers.

78 C. B. K.—Eikonogen developer produces sometimes yellow-colored edges all around the plate, and occasionally the whole deposit is stained yellow, which when dry has an iridescent appearance. What is the cause of it, and can the yellow stain be removed?

78 *Answer.*—Forced development with an excessive amount of alkali will produce yellow stain. The acid fixing bath removes the stain very often, and when the plate is left in it for a long time. By pouring a dilute solution of perchloride of iron over the plate, yellow fog will immediately vanish and leave the plate perfectly clear.

79 OMEGA.—Can the combined toning and fixing bath be revived by adding chloride of gold after it refuses to work?

79 *Answer.*—We do not advise to make the attempt. After the energy of the bath has been exhausted a variety of chemical changes have taken place, to make its continued use rather risky so far as the permanency of the print is concerned. Better set the old bath aside and use a new one. A bottle of the commercial bath containing 10 ounces will tone well from 40 to 48 5 x 8 prints.

80 W. K.—What is the best oil to burn in a magic lantern?

80 *Answer.*—Pratt's astral oil. Dissolve in a pint of it 1 ounce of camphor, which will give a much whiter light, but be careful to have a good chimney. If the combustion is not perfect much soot will be deposited from the camphor.

81 THOMAS.—Some one told me chloride of magnesium is a fixing agent for album paper. I can hardly believe it. Will you enlighten me?

81 *Answer.*—Dr. R. Liesegang has successfully experimented with chloride of magnesium, and described the process in *Archiv.* He takes 15 parts of it, 2 parts of alum dissolved in 100 parts of water, and leaves the print in it for from 30 to 45 minutes, when fixing is accomplished. Altogether it is not entirely new, for other chlorides, ordinary salt, for example, will also dissolve silver chloride.

82 NO NAME.—Eikonogen developer in one solution, as I have obtained from THE PHOTOGRAPHIC TIMES laboratory, produces sometimes yellow-colored edges all around the plate, and occasionally the whole deposit is covered with a thick yellow fog, which when dry has an iridescent appearance. What is the cause of it, and how can the defect be remedied?

82 *Answer.*—You use the developer in too concentrated a state. The presence of much alkali produces he effect complained of. Take the solution in the proportion of 1 : 4, and the plate will remain clear. But when the fog occurs, and a prolonged immersion in the acid fixing bath will not remove it, wash well in pure water and pour over it a weak solution of terchloride of iron, about straw color, when the fog will vanish and leave a perfectly clear and transparent plate.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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Weekly (illustrated) edition, for one year $5 00
" " " six months 2 50
" " " one month's trial 50

Single copy, Weekly, 15 cents.
The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.
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Quarter page, per insertion 5 00
Eighth " " 2 50
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Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

OPINIONS WORTH HAVING.—"Photographic Optics." "The intelligent, progressive and reading photographer has only to see the table of contents to know he wants the book."—J. F. RYDER, Cleveland, Ohio.

Studio Changes.

South Bend, Indiana. Lester & Paxson have sold their gallery.

On account of the extension of the New York and Brooklyn Bridge, Mr. Rawson will remove his gallery to 508 Fulton Street, above Bond Street, Brooklyn, on or about June 1st, 1891.

Danville, Va. Perry & Frayser succeed Frazier & Co.

South Bend, Wash. Willis & Morehead succeed J. W. Tollmon.

Business Notices.

HERE IS A FORTUNE, YOUNG MAN! $300 for my gallery; well furnished. Must go away.
BOX 139, Vergennes City, Vt.

FOR SALE.—"The Rembrandt Photo Studio," Cor. 125th Street and Eighth Avenue, Elevated Station, New York. Well-equipped, excellent trade, moderate rent, good lease. A sacrifice—owner leaving city. Apply early to 2338 Eighth Avenue.

VOIGTLANDER PORTRAIT LENS, 3¼-in. diameter, 7-in. back focus. Very quick and as good as new. One ¼ size Voigtlander, one ¼ Darlot Portrait Lens, Studio Boxes, Etc. Bargains. Owner recently died and all must be sold. JOHN H. THURSTON, Room 6,
50 Bromfield St., Boston, Mass.

FOR SALE, CHEAP, IF BOUGHT AT ONCE.—A portable picture gallery, 12 x 24 feet, 11 feet high; lots of light and everything necessary to make cards and tintypes. One 8 x 10 Dallmeyer Lens, 4 matched Victorias, and 1 set of 9½ tubes. Also tent, 14 x 28 feet, 8-ounce duck. Apply to
J. DAVIS, 88 Fourteenth Ave., Newark, N. J.
Only used one season. Reason for selling: other business.

STOLEN from Bonner, Preston & Co., Hartford, Conn. One new 6½ x 8½ Universal Camera; one 6½ x 8½ Gundlach Perigraphic Lens, No. 2222, and one 8 x 10 Gundlach Wide-Angle Lens, No. 2081. A liberal reward will be paid for the apprehension of the thief or the return of the property. BONNER, PRESTON & CO.

WANTED.—To exchange, a No. 1 Kokak Camera, in good condition, for a camera in which dry plates may be used. Address
S. R. STODDARD, Glens Falls, N. Y.

BEFORE stocking up for the summer's work try the Chautauqua plate.
MONROE DRY PLATE WORKS, Jamestown, N. Y.

WANTED.—Choice stereoscopic negatives from all parts of the world. Address
L. C. BENNETT, 423 Broome St., New York.

"PHOTOGRAPHY AS A BUSINESS." Cloth, 75 cents; paper, 50 cents.
BUCHANAN, BROMLEY & CO., Philadelphia.

NOW READY, MORAN'S BARGAIN LIST No. 37, fourteen pages. Look out for it. Send your address and secure a copy. R. H. MORAN,
396 Broome Street, New York.

BERTHIOT'S LENSES, all grades.
BACKGROUNDS, a large stock.
GEORGE MURPHY, 2 Bond St., New York.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co. and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

SOUVENIR ALBUMS.—Exact photographic reproductions of all the leading cities and scenic views noted throughout the U. S. Wholesale and retail. Entire editions, with sole control, at special prices. For descriptive circular, address CHISHOLM BROS., Portland, Me.

DO YOU WANT A LENS? Send for Catalogue.
BUCHANAN, BROMLEY & CO., Philadelphia.

RETOUCHERS! Try "Pearl" Retouching Leads. 15 cents each.
BUCHANAN, BROMLEY & CO., Philadelphia.

$2,500 cash will buy the finest studio in one of the nicest cities of California; population, nearly 30,000; gallery new and furnished very stylishly; low rent, best location, and good prices; average business, over $1,000 a month; best of reasons for selling; will sell the gallery without instruments, if desired. Address,
OSCAR FOSS, Photographic Supplies,
841 Mission St., San Francisco, Cal.

A RARE OPPORTUNITY.

In one of the Southern cities is recently opened a photographic gallery, which is fitted up with the best of apparatus and cost about $3,000.
The proprietor would like to have an experienced operator and good retoucher to help him, and would share the profits equally.
Long engagement for a good man. Address, with specimens and references, ARTIST, care PHOTO TIMES.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

PURE GERMAN MILLS MAGNESIUM POWDER for Flash Lights.
BUCHANAN, BROMLEY & CO., Philadelphia.

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After much labor and great efforts, I am happy to announce to my friends that I have fully overcome all difficulties in the making of an ISOCHROMATIC DRY PLATE which combines all the fine qualities of an ordinary plate —such as speed, brilliancy, etc.—with the property of rendering colors in monochrome in their true value as they appear to the eye, *without the use of a color screen.*

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These holders are very light and strong and carry two plates. The *Tom Thumb* plate, being $2\frac{5}{8}$ inches square, is used not only for small Portraits, Landscapes and General Work, but also for Lantern-Slides. Enlargements with sharp results can be made up to 12x12 with good effects. Being the Smallest and most Compact Detective in the market, its adaptability as a Satchel Camera (*i. e.*, a camera that may be carried easily in a small satchel), is one of its features. Camera, in polished Black Walnut Case, complete, $10.00. Extra Double Plate Holders, 90c. each.

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Special agents for the Platinotype Process. Printing and Developing done with greatest care.

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You can not *take* photographs in natural colors, but you can *make* them by using the

EGYPTIAN CHEMICAL COLORS,

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Full directions accompany each set. In three sizes, viz.:

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No. 2 " " " 9½ " " " " " 3 00 "
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Any amateur can compete in either one or all of these sections, the winner of a prize in one section being debarred from winning in any other section. The object of this is to prevent any one from taking all the first or all the second, or all the third prizes.

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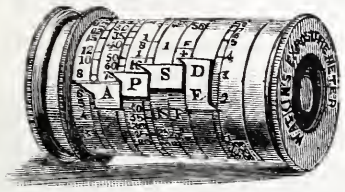
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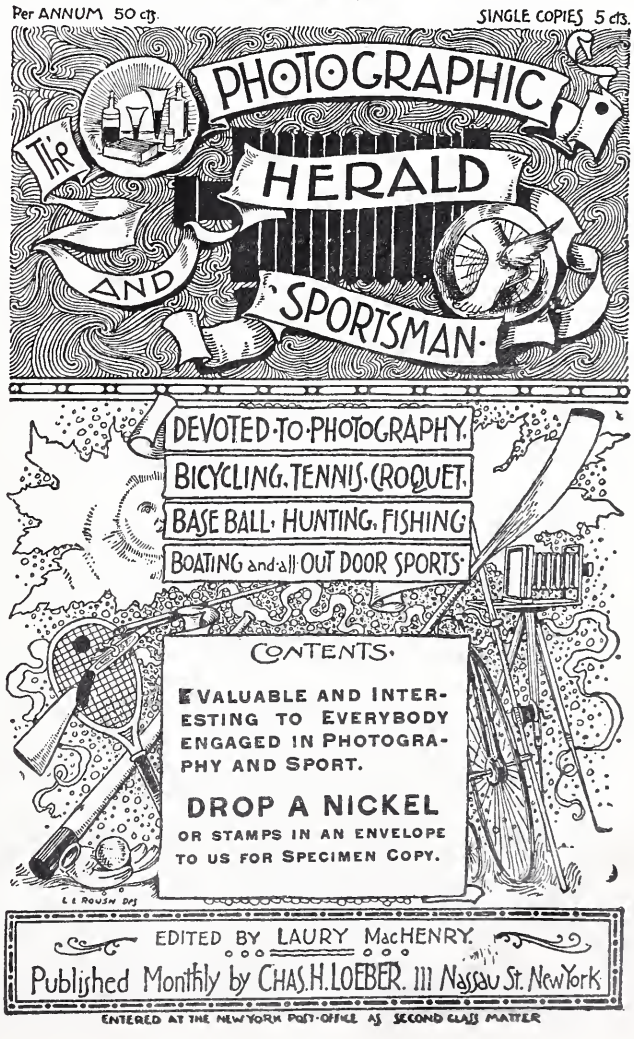
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Every facility will be offered advanced students for practice in special branches, particularly orthochromatic methods; instantaneous photography; printing on Star bromide paper; the making of lantern slides. A Scovill sciopticon will be at the service of students.

Instruction daily, from 8 to 12 A.M. and from 1 to 4 P.M.

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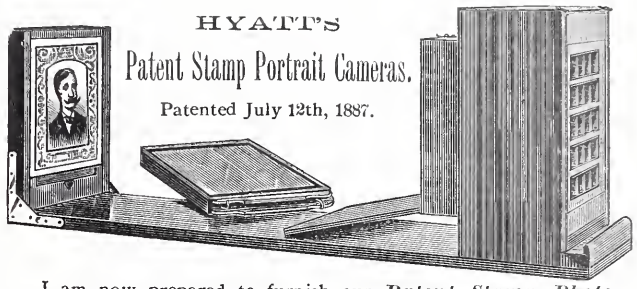
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I am now prepared to furnish our ***Patent Stamp Photo Apparatus,*** manufactured under the KUHN Patent, issued July 12th, 1887, with the right for using same, at the following low prices, and would respectfully caution the trade against purchasing or using any infringing apparatus.

Stamp size, with 25 lenses for making 25 on 5x7 plate....$50 00
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Perforators for perforating same, under our *Stamp Patent* (also issued July 12th, 1887)..... 35 00

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These lenses are absolutely rectilinear; they embrace an angle of fully 100 degrees, and are the most rapid *wide-angle* lenses made.

No. of Lens.	Diameter	Size of Plate.		Equivalent Focus.		Price.	
0..1	inch...	3¼x4¼	inch...	2¾	inch...each,	$20.00	
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3..1	"	...4¼x 6½	"	... 4½	" ... "	25.00	These 5 sizes will
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AS THE BEST PLATES AND FILMS NOW ON THE MARKET FOR ALL CLASSES OF GENERAL PHOTOGRAPHY.

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RESULTING in a harmonious negative, where the *true color values* are retained with the artistic effect often sought but seldom attained with plain plates,

SAVING much time and money, and increasing reputation for good work.

Prices same as ordinary plates. For Sale by all Dealers.
Send to Factory for the Orthochromatic Circular and Color Scheme.

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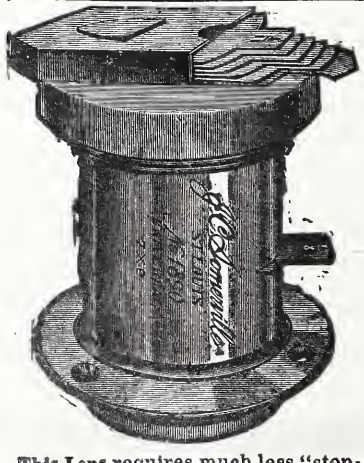
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The front and back combinations being perfectly symmetrical, superior marginal definition and perfectly even illumination of the plate can be obtained, and with the same length of focus as heretofore a larger field is covered and the size of the image increased, the resulting picture being absolutely free from distortion.

No.	Diameter.	Focus.	Size Plate.	Price.	With Iris Diaphragm.
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Be sure to try our LENS before buying.

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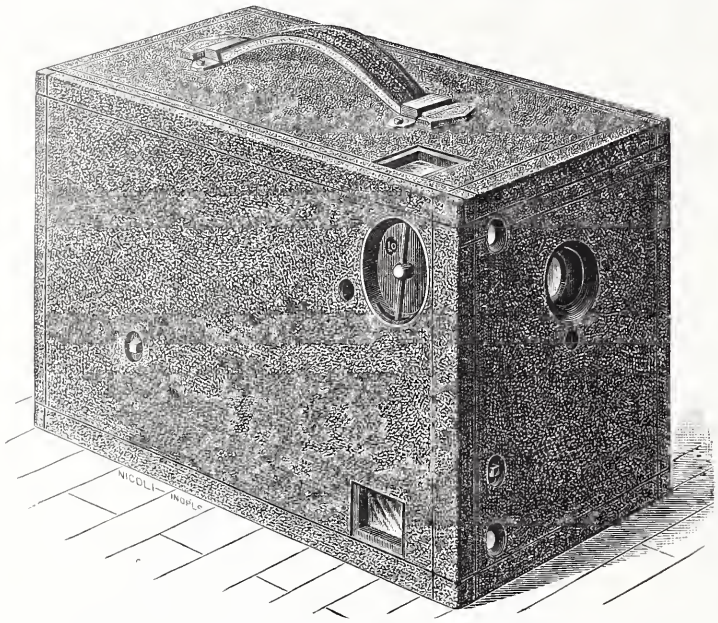
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Shutter to set, Slide to draw, No door to be opened.	Guessed at, Left to chance, or Complicated.
THERE ARE NO	**THE ACTION IS**
Hinges, Springs, or Obtrusive fixtures.	Directly mechanical, Under positive control, Absolutely EXACT.

Twelve consecutive exposures upon plates or films with but two movements.

TURN DOWN THE PLATE.
RELEASE THE SHUTTER.

A magazine in which the movement of the plate or film is directly and mechanically controlled at all times.
A locked box that is opened without a key.

A lens that is guaranteed.
A focusing device that can be *seen*, *felt* and *heard*.
A shutter that is ever set.
Diaphragms that are operated from without.
Light, small, simple and complete.
Plates can be changed in complete darkness, no especial light necessary.

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MESSRS. ALLEN BROS. NORWICH, February 1, 1890.

Sirs:—I am more than pleased with the Suter Lens, and would not be without it for twice the amount I paid for it. The one I have is only calculated to take a 11x14, but I have made an extension to my box, and it now cuts out a 14x17 as well as I could wish it to. Would recommend all to try the Suter Lens. I am, sir,
Yours respectfully, HENRY EGGMAN.

MONTREAL, February 3, 1890.

MESSRS. ALLEN BROS., Detroit Mich.

Dear Sirs:—I take much pleasure in bearing testimony to the excellence of the Suter Lens, having had one in use now for over four years, and found it to do everything claimed for it.
Yours respectfully, G. C. ARLESS.

ALLEN BROS., Detroit, Mich. AMHERST, N. S., February 6, 1890.

Dear Sirs:—I purchased one of your Suter Lenses (B No. 4) from Cunningham & Robertson, Montreal, which pleases me in every respect. I would say new beginners who cannot afford to buy a portrait and view Lens would do well to purchase one of these Lenses, as they give every satisfaction for general work. They are equally as good as they are claimed to be for dry plate work.
Yours truly, D. R. PRIDHAM.

MESSRS. ALLEN BROS. WATERLOO, Ont., February 3, 1891.

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Respectfully yours, E. W. EDWARDS.

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Solar and Electric Enlargements,

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FOR ARTISTS AND THE TRADE.

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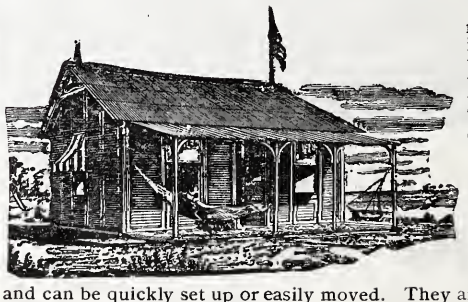
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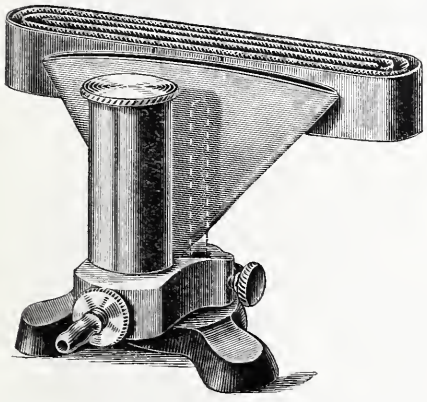
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A Vertical Sheet Flame.
(Nearly 100 square inches surface.)

AUTOMATIC AND SURE FEEDING FROM STORAGE CHAMBER.

Complete consumption of powder—Great lessening of smoke nuisance—More light from given quantity of powder—More effective illuminant flame—Short or long flashes automatically produced—No burstable bulbs required, lung pressure sufficient—Employing compressed air, a battery of lamps can be discharged simultaneously.

The cut shows the striking features of the lamp; but as now made, wick chamber surrounds end of fan-shaped projecting tube, and is provided with a hinged safety extinguishing cap. Lamp can be held in the hand or secured at desired height to a stand rod. Substantially made of brass and finished in steel bronze or nickel plated.

PRICE, including 5 feet 3-16 tube, $5.00.

Circulars of Prosch Shutters and Flash Lamps to be had of dealers and the manufacturers,

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HAVE YOU TRIED THEM—WHAT?

CRAMER'S Isochromatic Plates,

Perfectly Isochromatic without Color Screen.

CRAMER'S Sensitized Albumen Paper,

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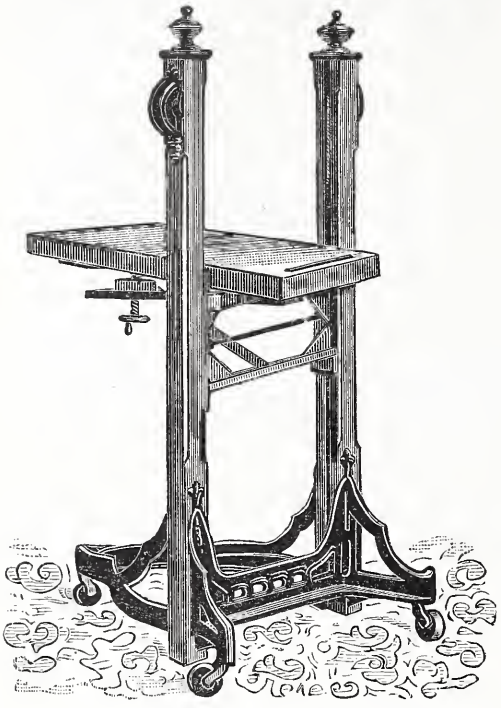
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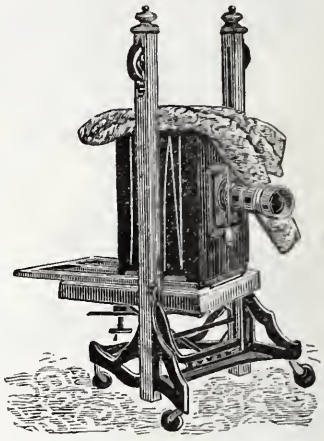
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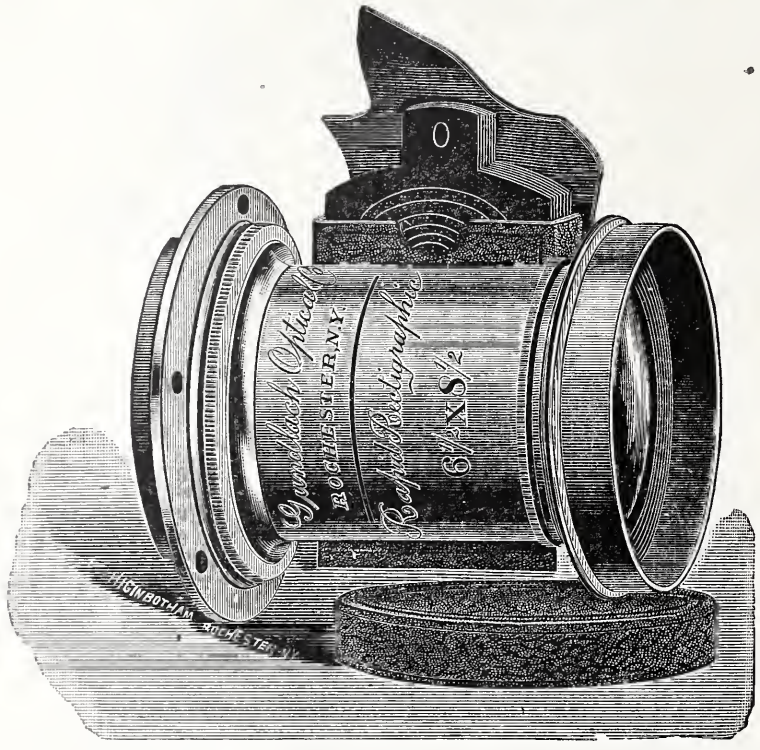
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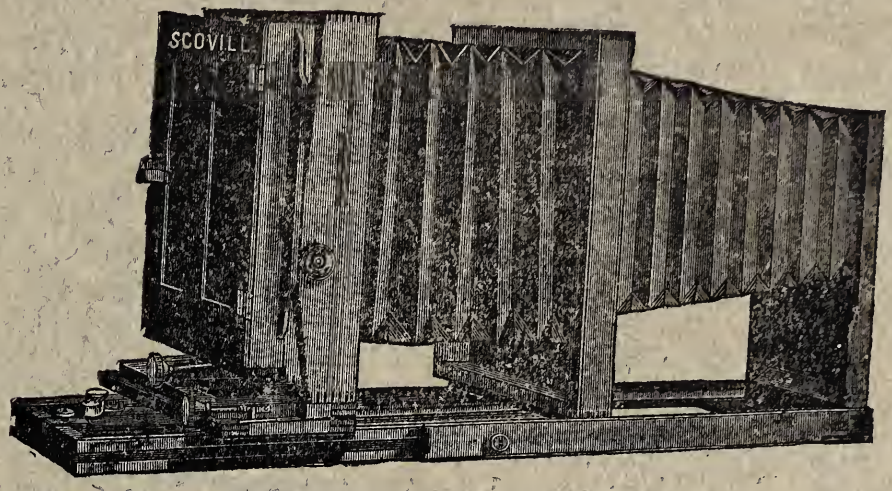
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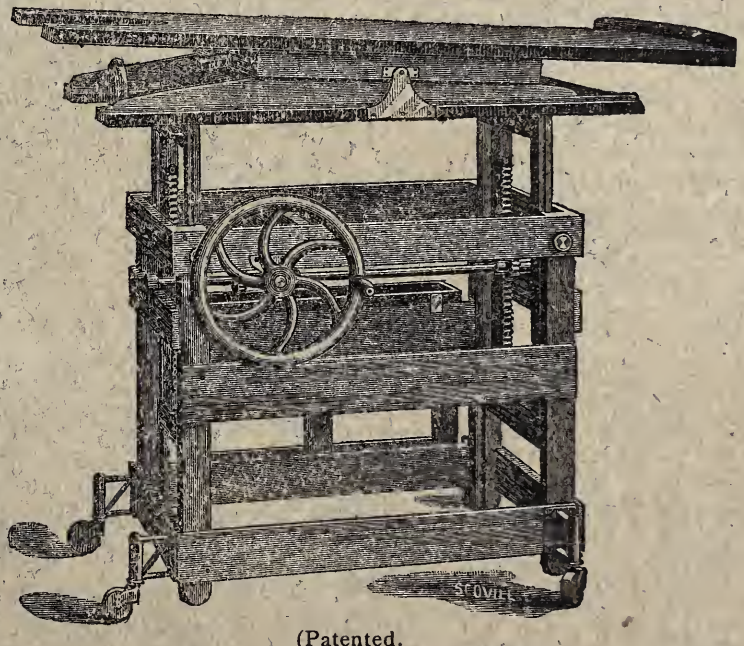


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EMILY V CLARKSON, PHOTO

JUST OUT

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, JUNE 12, 1891. No. 507.

"JUST OUT!"

OUR frontispiece this week is somewhat belated, owing to a press of circumstances, which could not be controlled; for chickens by no means should be "just out" so late in the season, but it will be none the less welcome, we are sure, for that reason. The picture tells its own story, and therefore needs no comment from us, further than to state that it was made by Miss Emily V. Clarkson, a successful young lady amateur of Pottsdam, N. Y., who is an enthusiastic member of the Chautauqua School of Photography, the Postal Photographic Club, and other photographic organizations. She will be remembered as the author of a Christmas picture which appeared in our holiday number for 1890. The present picture is fully up to her high standard not only as to its originality of idea, but also in its composition and excellent technical execution.

THE ALBUMEN PROCESS.

II.

IF we acknowledge Daguerre to be the inventor of the process named after him, and Fox-Talbot the inventor of photography proper, it is certainly due to Nièpce that we should recognize him as the first to make negative pictures upon glass.

Nièpce's first experiments to apply a sensitive film upon glass were made with starch, wheat, arrowroot, rice, and sago, and although with these he obtained a decidedly sensitive film, he decided finally in favor of albumen, and we find a description of his mode of operating in his earliest writings.

To the whites of two or three hens' eggs he added twelve to thirteen drops of a saturated solution of iodide of potassium, beat it into a stiff froth, allowed to settle and filtered. Well-cleaned glass plates were coated with this solution in a horizontal bath dish, similar to those used later for silvering large collodion plates, placing them upon a leveled table, and drying spontaneously at a temperature of 65 deg. Fahr. Higher temperature produces innumerable breaks or cracks upon the film, finer or coarser, in close proximity to each other or wider apart, in correspondence with the thickness of the film. These cracks, as Negretti has observed, are not at all injurious to the plate, as they are never reproduced upon the paper copy, but they are very objectionable in diapositives, and especially on lantern slides.

A. Martin* describes Nièpce's process in detail, and adds to it several valuable hints. Like Whipple, Nièpce added honey to the albumen, to each white of egg from two to three grams of it and from three to four decigrams of iodide of potassium, beaten into froth, setting and filtering through silk.

To coat a plate uniformly with the mixture was considered a very difficult operation; several devices to do it well had been resorted to, and it was naïvely suggested to invent a mechanical contrivance to do the work. After the plate has been dried by heat in an oven it is immersed in a solution of 6 grains of crystallized nitrate of silver, 12 grams crystallizable acetic acid, and 60 c cm. of distilled water. The plate remains in the bath for ten seconds, moving it up and down during that time, is washed in distilled water and dried in absolute darkness.

Developing is done with saturated solution of gallic acid, and accelerated by adding a few drops of the aceto-nitrate bath. Still without silver, very harmonious negatives, with splendid half-tones and absolute clearness result, though with the sacrifice of much longer time than with silver. As a fixing agent for these plates bromide of potassium is much preferred, as hyposulphite of soda is very apt to produce a yellow-reddish stain, if but a trace of gallic acid remains in the film. Of all

*"Handbuch der Photographie," 1854, Wien.

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accelerating substances experimented with, Nièpce prefered honey, because it does not offer objectionable features, like fluorides for example, which invariably tend to splitting of the film. Ammonium fluoride mixed with old albumen and honey is a great accelerator, and would have been quite practical were it not that in consequence of it the film scaled off the plate on drying. The best results are attained with honey only, the plates are of uniform thickness, no scaling or splitting taking place, and of such enormous sensitiveness* that in diffused daylight an exposure of from two to six seconds with a quarter size double objective is quite sufficient to make a perfect negative. Lyndon Smith† objects very much to the addition of honey in so large quantities, and can not possibly understand why the soluble honey is not washed away by the subsequent treatment of the plate in aqueous solution, and accuses honey as accountable for the many transparent spots frequently found on albumen honey plates, an observation not endorsed by the great majority of albumen operators.

Of additional accelerators are mentioned comparatively thick films, albumen of old eggs, an old aceto-nitrate bath (impregnated with iodide of silver), or exposing the albumen for several hours to a moderate heat. The albumen of duck and goose eggs seems to be more sensitive.

Previous to the above-mentioned process, Nièpce exposed a plate coated with pure albumen to the vapors of iodine till it assumed a bright yellow color, and bathed it afterwards in a weak solution of silver nitrate, 1 : 30, a method adopted afterwards by Talbot and Malone for the producing of a reversed image.

Very interesting are the experiments of Blanquart on the sensitiveness of albumen films. He made pictures by instantaneous exposures, when employing fluoride of potassium with the iodized albumen film, and without washing the plate on removal from the aceto-nitrate bath. Similarly good results he has obtained by omitting the fluoride from the film, put by placing the plate after sensitizing in the aceto-nitrate bath into a solution of fluoride of potassium. Later Blanquart heated the albumenized film to a temperature of 50 to 75 deg. Fahr., and coagulated it over the fumes of acetic acid, immersing afterwards in a 10 per cent. silver and a 5 per cent. iodide of potassium bath, finally bathing it in fluoride of potassium.

Marshall dried his plates without heat, sensitized with much stronger solution, but instead of gallic acid developed with ferrous sulphate.

* In 1850.

† *Humphrey's Journal*, vol. III, page 27.

Quite different from other albumen processes practiced in the early times of photography is that of J. R. Le Moyne who clarified albumen, not by the usual method of beating it to a froth, but by adding sugar and subjecting it to slight fermentation. Sugar he found enhances sensitiveness and promotes adhesion to the plate. After drying, the film is iodized in tincture of iodine, and 10 per cent. nitric acid of 40 deg. Baumé, and sensitized in a 10 per cent. pure nitrate solution, without any acetic acid. These plates were developed with strong solutions of ferrous sulphate, but when they were to be developed with gallic acid, the aceto-nitrate bath of silver was necessary. As with Blanquart's plates, chloride of potassium acted as an accelerator, Le Moyne's picture showed a decided positive character when viewed by reflected light; he backed them for that reason with asphaltine varnish, and thus anticipated the collodion positive or ambrotype, so popular for some time in this country and England.

Groll, of Vienna, mixed gum arabic with albumen, and extremely fine results in transparency and opacity, but cautions against the easy forming of air-bubbles consequent to the addition of gum.

Humbort de Molard accelerated the sensitiveness of albumen plates with honey, grape sugar, milk-sugar, and the mucilages of quince and linseed, or that of the marshmallow root, coagulated the film with nitric acid, washed in ammonia, sensitized with yellow iodide of silver, dissolved in iodide of potassium, and after thorough washing in the aceto-nitrate bath.

With the exception of Nièpce's and of Whipple's albumen-honey process none of those described or any of their many modifications were extensively employed, but Mayall, of London, published a formula eminently well-adapted for the making of enlarged reproductions, microscopic and lantern slide pictures, because of their fine clearness and faultless sharpness. This process does not differ very much from many others, but he claims that by following his formula strictly it is one of the conditions of success. In the first place he lays much stress upon a perfectly clean glass plate. To attain to such a condition he washes it first in alkaline lye, then in acid, and like a daguerreotypist might be expected to do, polishes carefully with rottenstone and alcohol. Fresh albumen, to which for each egg 10 drops of a saturated solution of iodide of potassium is added, is beaten into a froth and settled in a temperature of 60 deg. Fahr. The coated plate is set upon a leveled table, dried without application of heat, and sensitized in 50 grains

nitrate of silver, 120 grains strong acetic acid, and 1 ounce distilled water, washed and dried.

These plates are not very sensitive, and therefore are better adapted for positive or reproduction work; with a 12-inch focus lens, stop F 15, a well-illuminated subject requiring perhaps as much as five minutes exposure. Developing is done with gallic acid and but a modicum of aceto-nitrate of silver.

The albumen process found many advocates in France, but the English amateurs worked with it but a short time, when it was superseded by the collodion process. Later, the two processes were combined, and those of Taupenat and Fothergill became for a time at least quite popular. In a later paper we shall endeavor to describe these two interesting processes. *C. E.*

EDITORIAL NOTES.

The purity of the chemicals employed in photography is so important a factor in certainty, accuracy and rapidity, that every method of insuring that purity is of interest. We note a very ingenious method of obtaining iodine free from its usual accompaniment, chlorine. Crystals or flakes of iodine melt at a temperature a little above the boiling point of water, 107 deg.; but a strong solution of iodide of potassium has a still higher boiling point, and in the application of this fact lies the new process. Such a strong solution is made, the ioxine is placed in the containing vessel, and heat gently applied, enough to melt the iodine but not to boil the solution. The result is the complete freeing of the iodine from all traces of chlorine.

The practical application of an abstract chemical fact has never been more satisfactorily applied than in the freeing the atmospheric air from nitrogen, as in the processes utilized in making compressed oxygen for lantern use, the old-fashioned gas-bag being now almost a thing of the past. If in Brin's process the time requisite to complete the operation could be shortened, the price might be materially reduced without lessening the maker's profit; but meanwhile, according to *Dingler's Journal*, another method of achieving the same object has been invented by Herr Kassner, and promises to become a real success. The new plan is not difficult to comprehend, even by non-technical readers. A little in excess (5 per cent.) of two equivalents of carbonate of lime (common chalk, for example, though limestone is to be preferred) is heated with one of oxide of lead, the product being a spongy mass, to which the name plumbate of lime, or calcined plumbate, is given. No mechanical stirring is required during the operation. This plumbate is next heated in an ordinary furnace in the presence of carbonic acid gas, when oxygen is freely given off according to the following equation: $CaPbO_4 + 2CO_2 = 2CaCO^3 + PbO + O$. It is thus seen that from the same bulk of material unlimited quantities of oxygen can be obtained. The advantages of this process over Brin's are, according to the inventor, as follows: the formation of the plumbate is effected in a few minutes, and its subsequent decomposition is complete, while the working expenses, cost of plant, and value of raw material are extrely small.

"Hypo" is sometimes found in the carbonate of soda of commerce. Its presence may well be expected to produce abnormal conditions of development. It is readily detected if a small quantity of the suspected sample be triturated with one-fiftieth of its weight of ordinary calomel. An immediate blackening is seen if the smallest trace of "hypo" be present.

Those familiar with the working of the carbon process upon glass know the powerful force exerted by the contracting gelatine. It is no unusual thing for a piece of glass, whose surface is rather curved, to be broken to fragments by the gelatinous coating. We have seen the glaze from the interior of a porcelain evaporating basin stripped away in patches, from a similar cause. Whether from photographic experience or not we cannot say; but it has recently been discovered that the process, hitherto kept a profound secret, for producing the so-called "crystalline glass," is based upon this property of gelatine. The glass is coated with a thick solution of glue, and then placed in racks to dry at a temperature of 95 to 100 deg. After a while the contractile power becomes exerted, and portions of the surface are literally torn away by the glue in all manner of fantastic forms and patterns.

The new and singular compound of nitrogen and hydrogen hydozoic acid, HN_3, is found to dissolve gold, a most remarkable property in any single acid, and still more so in the case of one of organic origin. We have no reason to suppose, however, that there is any probability of its supplanting the ordinary gold salt in photographic operations. The silver salt of this acid is acted upon by light, and in a very violent manner, more especially by green light, which, when at all brilliant, causes the azoate to explode.

A FREAK.

WITH paint and powder on her cheeks,
To a photographer goes she.
He can not trust her—girls are freaks—
A *two-faced* maid, she is, you see!

MOUNTING AND FRAMING PHOTOGRAPHS.

FRAMING.

Now a few words on the subjects of frames. First, as to shapes. It will be admitted by all (except, perhaps, the frame-makers) that fancy shapes are nothing short of an abomination. I have seen terrible things, with expanded corners, indentations and excresences at various points along the sides, all very fearful and wonderful, setting forth the ingenuity of the maker in having contrived to introduce so many absolutely unnecessary joinings and miters.

One of the objects of a frame is simply to isolate the picture from its surroundings. Hence the importance of selecting a wall paper or color which shall be quite different from the tint of a frame. Nothing has a worse effect for instance than oil paintings in gilt frames against a bilious yellow wall. For the support of heavy gilt frames, perhaps a darkish dull red, tinging to green, is best—something between venetian red and russet olive. The majority of gilt frames used for photographs are generally narrow rather than wide, and in this case the background may be very much lighter than in the case of wide heavy gilt frames. To digress for a moment—it may be worth mentioning that large silver prints and large sepia platinotypes may be very effectively framed with rather wide gilt frames, "close up," *i. e.*, without any mount visible at all. This is the case especially when the print inclines to dark rather than light.

The question of *width* of frame next claims attention, and here again first principles will suggest that it should not be excessive. A light print with a correspondingly light mount naturally calls for a frame which is rather narrow; while, on the other hand, a dark print, *e.g.*, interior—large head against dark background, etc.—seems to call for a frame somewhat wide and perhaps recessed, so that the picture appears to stand back and be well supported.

As to the color and material of the frame itself, here again there is room for considerable variety. For simplicity perhaps a solid, plain oak frame stands first; but as the color is usually rather light this is not suitable for dark prints or those shewing strong and pronounced contrasts. The oak frame, however, has the advantage of durability, a quality not to be altogether despised, as those who have experience of exhibiting can amply testify. For silver prints a walnut frame with a fairly wide dead-gold slip often has a good and quiet effect; as the warm color of the walnut wood seems to be in harmony with the red tendency of the gold-toned print. For a black and white print (platinotype, bromide, etc.), perhaps the best general effect is obtained by employing a dull, dead, black frame with a rather narrow dead gold slip; the object of the gold slip being simply to break the intense contrast of the black frame and nearly white mount. I think it may be laid down as a good and general rule that the frame should be *dead* and dull rather than *bright* or shiny. Anything which sparkles or shines is not only apt to catch the eye and so become distractive, but also is apt to cast unpleasant reflections along the glass.

In conclusion, it need hardly be said that it is needful to impress upon the framer the necessity of using faultless glass. I have seen more than one very excellent picture in a public exhibition greatly marred by the use of glass containing either striæ or air bubbles, both of which produce most distressing effects.

It may be urged that my hints contain nothing whatever of novelty, and are only trifles; yet I venture to think that it sometimes happens that such trifles as these are just enough to distract or please, according as they are discordant or concordant. However, it seems a matter beyond dispute that great minds can condescend to trifles, and it is an old and wise saying which tells us that "a straw will show which way the wind blows."

F. C. Lambert.

P. S.—Perhaps I should not altogether omit all mention of fancy frames. Such, for instance, as are made of velvet, leather, crocodile skin, ivory, or filagree silver and other metals and workable materials

The use of these more properly comes under the question of decorative art, where the object is not to concentrate the attention of the observer upon a special and limited area, in this—our case—the framed picture.

It becomes a matter for each one to settle for himself how far he is willing to have attention taken from his picture by any peculiarity or unsuitability of the framing material. However, when we come to decorate (!!!) these so called "fancy" frames with stuffed kittens, frogs, skeletons, mice, and other ingenious and utterly incongruous objects, then it is hard to believe that anything that reason could say to one who employs these

"decorated fancy" frames would have any practical effect. The only thing that occurs to me is to suggest to such an one that if he elects to put what he deems a work of art in a frame which has for its chief recommendation, say a couple of cotton-wool monkeys "introduced for effect," then the "effect" would be considerably augmented by inserting the "picture" upside down. F. C. L.

THE TONING OF PHOTOGRAPHS CONSIDERED CHEMICALLY, HISTORICALLY, AND GENERALLY.

CHAPTER X.

Mixed and Miscellaneous Toning Baths.

Under this head we propose to insert certain formulas for toning baths which seem to require separate mention. They include these which contain several—or at least more than one—additions to the chloride of gold; so that they cannot be indicated by the name of any one chemical. They are also, for the most part, "well recommended" baths; *i. e.*, they come to us vouched for by men well known in photography and as the results of long practice. To find them we have turned over many thousands of pages of the literature of photography.

Sarony's Toning Bath.

Stock Solution, No. 1.

Chloride of gold.....15 grains
Distilled water.... ... . 2 ounces

Stock Solution, No. 2.

Carbonate of soda..... 2 drams
Distilled water..... ..... 2 ounces

To tone two sheets of paper take:

Stock solution, No. 1..... 1 dram
Stock solution, No. 2 ..... 1 dram
Warm distilled water (80 deg. Fahr.) 8 ounces

Add the gold last; and wait till the mixture is quite colorless. This bath (published in 1867) is said to give fine violet-black tones.

Bovey's Plain Toning Bath.—The bath next to be described appeared in a series of articles on "Silver Printing," contributed by Mr W. T. Bovey to the *Photographic News* for 1868:

"Use the orange-colored sample (commercial) of gold; which is a double salt, consisting of chloride of gold and sodium.

"Keep this gold in concentrated solution, thus:

Chloride of gold..... .....1 grain
Distilled water..... .....1 dram

"1st.—Measure out two gallons of water (clear rain or river water if at hand; well-water should be previously boiled). *

"2d.—Measure into a jug (porcelain) 12 grains of gold; add about 1 grain of fine table salt; and pour over the whole 1½ pints of boiling water; allow this to stand a while until lukewarm; then add the 2 gallons of water previously measured out. Your bath is made, and ready for use. Go to work."

Bovey adds that this bath improves with age. It may be strengthened when needed by pouring ½ a pint of boiling water over 4 grains of gold to which ¼ of a grain of fine salt has been added; allow this to cool and then add it to the main toning bath. The bulk of the whole bath (2 gallons 1½ pints), should also be kept up by the addition of pure water when necessary. The quantities given are for professional use; amateurs should commence with one-half those stated.

Again, with this bath the "free nitrate" must *not* be all washed out of the prints. This being the case it will clearly be better not to attempt to save any of the toning bath which may be thought to be not quite spent, by returning it to the main stock. Only pour out so much as is needed to tone the prints in hand, and then throw it away.

Durand's Toning Bath.—The "Year-Book" for 1876 (p. 110) contains a formula by Mr. C. Durand, for which he claims the advantages "that a stock bottle of one grain of gold to the ounce may be kept for many weeks without depositing gold in any appreciable quantity, and it may be added to water, or to the weaker solution of it which is in daily use, at a moment's notice, without danger of that form of mealiness which is often produced by the toning bath."

Chloride of gold.....15 grains
Lime water.....15 ounces
Acetate of soda..... 3 drams

This is the stock solution, and should be made two days before it is required for use. It should be kept in a stoppered bottle, and for use 1 ounce of it should be added to 6 ounces of water.

After use, the solution should *not* be returned to the stock bottle, but may be thrown away (if exhausted), or placed in a second bottle to which more of the stock solution should be added when it is again desired to use it.

Cherrill's Sulphocyanide Toning Bath.—Mr. Nelson K. Cherrill was well known, twenty years ago, as the partner of Mr. H. P. Robinson, and as one of the first professional photographers in England. He contributed an account of his favorite toning bath to the "Year-Book" for 1868, p. 62.

* Use *distilled* water, if possible, for making up every toning solution.—W. J. H.

Make up the following solution:

Chloride of gold	1 grain
Sulphocyanide of ammonium	20 grains
Distilled water	2 ounces

This is the formula as given by Cherrill, but it would, of course, be advisable to make up at least eight ounces of the solution, multiplying the above quantities by four.

No over-printing is required. Wash the prints thoroughly before toning, and use the bath fairly warm—say 70 deg. or 75 deg. Fahr. "The image is first reduced, on immersion, to a foxy tone, and then it becomes strengthened, by degrees, to a series of colors: rich, warm, and brilliant, ending in black." A good deal of gold is used up by this bath; about *two* grains per sheet. The bath can be used over and over again, being strengthened with gold every time after using. After toning, fix in hypo as usual.

HEISCH'S LIME TONING BATH.

"Dissolve 1 grain of gold in 1 dram of water; to this add lime-water until the blue color is just restored to reddened litmus paper. Now dissolve 8 grains of dried, but not fused, chloride of calcium in 5 ounces of water; to this add the solution of gold, stirring all the time; and, finally, add about 3 ounces more of water."

In this formula, "gold" of course means chloride of gold. Heisch was an English chemist and photographer of great experience; he published this formula in 1865. Very little over-printing is required, and the prints get blacker as they dry. This bath may be used after it has been mixed twenty minutes, or on the following day. If it be not exhausted it will keep if a drop or two of acid be added (just enough to redden litmus paper), and then, when again required for use, enough lime-water must be added to neutralize this acid.

FERGUSON'S TONING BATH.

Dissolve 15 grains of chloride of gold (an ordinary "tube") in 15 ounces of lime-water (*not* chloride of lime), and add 2½ drams of acetate of soda to the solution.

Put the mixture in an earthen pot, stand this in a saucepan containing water and put it on the fire until it boils. Keep for two days before using.

The above is the stock solution. Dissolve 4 grains of carbonate of soda in 8 ounces of water, and add to it 1 ounce of the stock solution. Keep the bath at a temperature of 70 deg. Fahr., by standing the dish containing it in a tin dish half-full of hot water.

LEWIS'S TONING BATH.

Mr. Abel Lewis (a well-known professional) gave the following toning bath in the "Year-Book" for 1879, p. 68:

Chloride of gold	2 grains
Acetate of soda	60 grains
Saturated solution of chloride of lime	8 drops
Bicarbonate of soda	1 grain
Distilled water	2 pints

He adds: "It is better to put a number of prints at once into a rather weak solution, and let them all tone slowly and gradually, than to use the gold in a more concentrated form. The prints thus toned have that rich, juicy appearance that rapid toning generally destroys."

DUNMORE'S TONING BATH (1887).

Print rather deeply in diffused light. Wash the prints in plain water till there is no milkiness. Then dip in very weak salt water and wash again.

Mix the following toning bath a day or two before it is required:

Chloride of gold	1 grain
Chloride of calcium	4 grains
Acetate of soda	30 grains
Distilled water	10 grains

Immerse the washed prints, and keep them moving.

W. Jerome Harrison.

(*To be continued.*)

AUTOMATIC PHOTOGRAPHY.

THE first idea of applying automatic apparatus to photography is due to a Spaniard, Mr. Juan Canto, and although quite recent, this invention seems to have reached

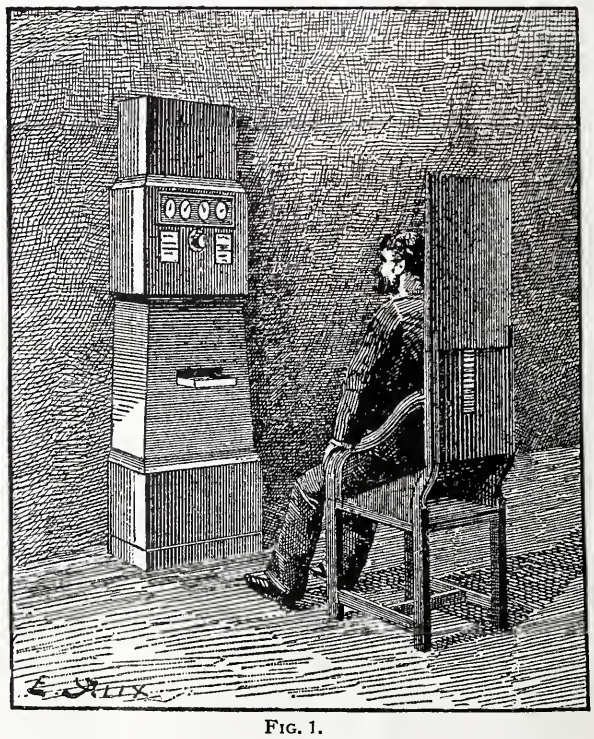


FIG. 1.

already a degree of perfection sufficient to establish it as in the region of the practical. The apparatus conceived by Mr. Canto, and patented December 31, 1887, was con-

structed by Mallet, at Paris, but did not give the results expected by its inventor. Two of Mallet's workmen, named Zacco and Duran, took up the idea on their own account, and succeeded, with the aid of Isaac Joel, in setting on foot a company with a capital of several millions for the manufacture and sale of a perfected apparatus, to which they adapted the development process of Cheren and Féret. This attempt had no better result. On his part, Mr. Canto, continuing his researches, finally succeeded, with the aid of Mr. Tauffreville, in making a new

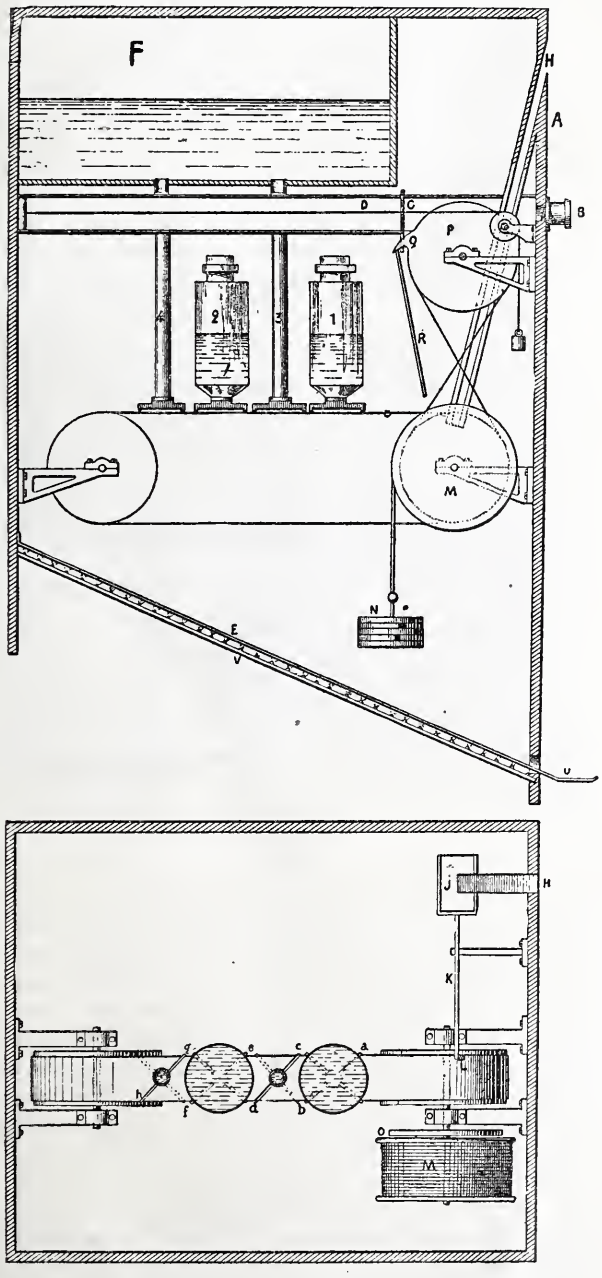


FIG. 2.

apparatus, which worked very well. Another inventor, Mr. Enjalbert, exhibited in 1889 an apparatus based on a different system, and which, in an improved form, has recently been placed in the Casino, at Paris, where it has worked successfully. We will not attempt to give our readers a complete description of these ingenious machines, but it has seemed of interest to show the drawing of Canto's first apparatus, and Enjalbert's as it is to-day; we will afterward allude to other systems which have been proposed, which have all more or less analogy with the earliest one.

The Canto apparatus (Fig. 2) is composed of a box, A, on which is fixed an objective, B, behind which is placed, at a suitable distance, a holder, C, closed by a shutter, in which the photographic plate is held. A series of additional plates placed parallel in a receptacle can be brought successively into the holder by any suitable system, as for instance, by means of two cords attached to weights and passing over pulleys, as indicated in the drawing.

The coin, being introduced into the canal, H, drops on to the plate, J, and causes the lifting of the end of the lever, K, which, liberating ratchet, L, allows the drum, M, to make a rotary movement under the action of the weight, N. The pulley, O, mounted on the same axle, is also carried along by this movement and transmits the rotation to the pulley, P, carrying a cam which works the tooth, Q, of the shutter, and opens it. The plate, exposed to the light, is impressed; it drops when the shutter closes, and slides along inclined plane, R, to the endless belt, S, which moves from right to left, actuated by the drum, M, and carries the plate successively underneath the bottles, 1 and 2, and the waterpipes, 3 and 4. The ratchet, I, moving with the endless belt, touches the lever, *ab*, turns it, and brings it into a perpendicular position; the developing liquid, contained in the bottle, 1, falls on the plate until a second cleat fixed on the belt (not seen in the drawing because it is on the other side of the belt) presses against the lever and brings it back to its first position. In the same way the opening and closing of water pipe, 3, bottle, 2, and water pipe, 4, are successively obtained by means of the levers, *cd*, *ef*, *gh*. The water comes from a small reservoir, F. The portrait once fixed and washed, descends along the inclined plane, E, underneath which a gas-pipe with numerous burners is placed, which dry the picture before it reaches the shelf, V, where it is delivered to the public.

As we remarked before, this apparatus did not give satisfactory results when tested. Mr. Tauffreville's modifications remedy the imperfections of the first model. The plates are placed one above the other in a box closed at the bottom by a drawer. The mechanism does not differ much, being still a clock-work movement, kept in repose by a ratchet. The plate, after exposure, drops into a tray, in which the different operations of development, fixing, and washing take place. This tray is actuated by a disk mounted on the motor axle and carrying a series of undulations and projections, the undulations agitating the tray and the projections turning it over.

The liquids are contained in bottles with valves at the bottom, opened by pegs let into the exterior surface of the disk before mentioned.

The Enjalbert apparatus, shown in Figures 1, 3 and 4, utilizes another principle, the ferrotype, which makes a picture on a thin metal plate covered with varnish by the wet collodion process. For this purpose, the plate, on coming out of the box, A, is first coated with collodion, then sensitized in a silver bath. The subsequent operations are similar to those previously described. The apparatus is thus necessarily more complicated, and is really a masterpiece of ingenuity. It is actuated by electricity, generated by a cell or storage battery placed in the lower part.

Vertical partitions divide it into 5 separate parts, which

we number 1, 2, 3, 4, 5. The first contains the reservoir of plates A, formed by 4 uprights, between which lie the plates, separated by brass frames placed cross-wise, so that when the plates are pushed out by the rod, B, the frame drops down into the trough, U, and is ready to be used to frame the picture when finished.

At the lower part of the apparatus is the electric motor, M, which receives the current, and by means of geared wheels, turns the shaft, R, which runs through all the partitions and transmits motion to all the parts. A cam, *r*, works the three oscillating levers, C, D, E. The first two are connected electrically with the first dial (Fig. 4) and are each one terminated by a little fork which, under the influence of an electro-magnet, oscillates in a plane perpendicular to them.

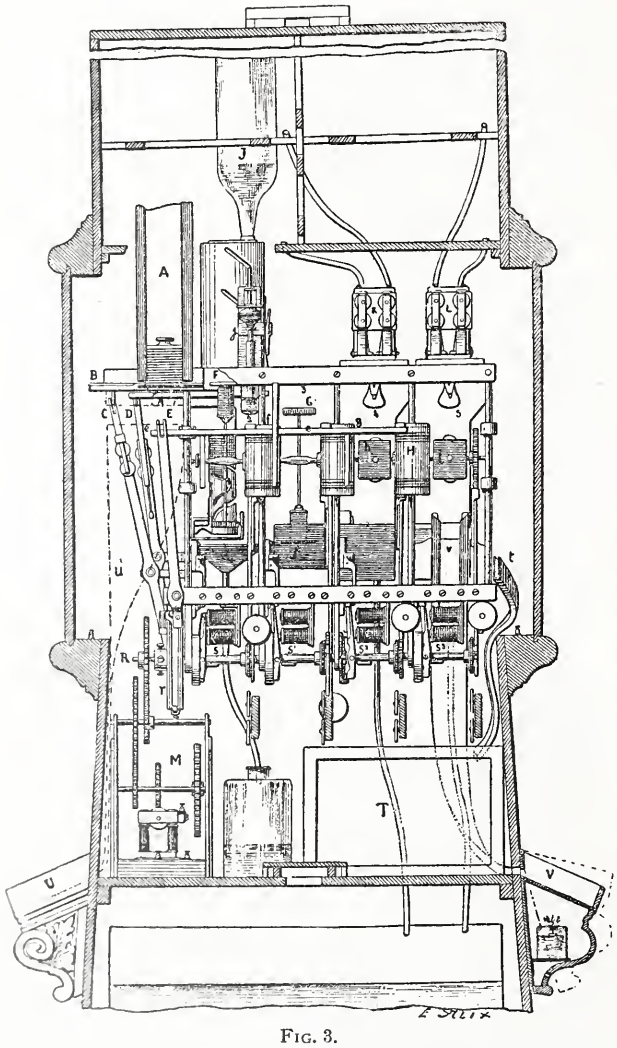


FIG. 3.

The coin introduced into the opening shown in Fig. 4 drops into a plate and tips a lever which makes the current connection; the current passes into the electro-magnet shown in division 2, and at the same time sets in motion the motor, M.

The electro-magnet attracting the vertical lever, which is opposite its poles, fixes the sleeve, S, on the axle, which carries it along in its movement. By an arrangement of toothed sector and cam, the head of the support, F, is brought against the reservoir of plates. At the same moment the first contact on the dial sends the current into the electro-magnet of the lever, C, and pulls aside the end of the lever, which seizes the fork of the pusher, B. This is driven toward the right, carrying along the plate, which is placed on the support, F, where it is held by the action of the current traversing the electro-magnet. The second contact on the dial has made the coin drop into the box, T, and the first lever takes its original position. The third contact throws the current into the lever, D, which works the dropping tube, *j*, which brings on the plate a few drops of collodion contained in the reservoir, J; an oscillatory movement given to the support, F, spreads the collodion over the plate, and makes the excess fall into a funnel placed beneath, whence it runs into a reservoir at the bottom of division 2.

The cam, *r*, then moves the lever, E, which presses against the rod, *e*, furnished with catches which make the plate pass from F to G over the fixed support, *f*. The support, G, retains the plate in the same manner as F, and plunges it into a vase, J, containing a silver bath, where it is agitated repeatedly. Then the support raises it, and the sensitized plate is ready behind the objective. At this moment the indicator on the second dial passes over the words, "ready," "attention," and the person to be photographed sits in the chair and remains still while the

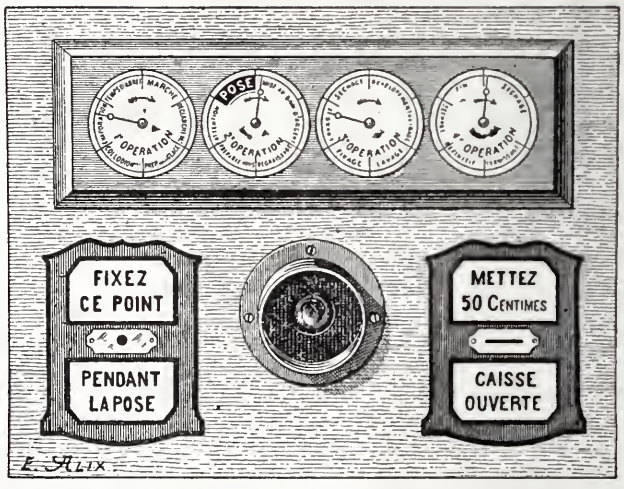


FIG. 4.

indicator is passing over the word "pose." The commutator on the dial sends a current which opens the shutter, and rings a bell during the time of exposure. When this is finished the shutter closes, the cam, *r*, continuing to act on the lever, E, and the rod, *e*, pushing the plate into division 4 on to the support, *h*; the sleeve, S^1, which had replaced the sleeve, S. for the preceding operations, is in turn suceeeded by S^2. The support, *h*, brings the plate underneath the faucet placed under the vase, K, terminated by a flattened nozzle.

The process is the same in this and division 5 as in the two preceding. The liquids after acting on the plate, drop into funnels and thence into a receptacle in the lower part of the machine. Lastly, the movable support, *i*, inclining downward, scrapes the plate off the support into the conduit, whence it reaches the incline, V, heated by a little alcohol lamp. The latter stages of the operation are indicated by the indexes on the remaining two dials.

Karl Ramspach and Berthold Schäffer, of Hamburg, have conceived an apparatus where the plate is also prepared at the time of use. Fig. 5 shows the exterior of an apparatus invented by Mr. Steffen, of Chicago. In this, the plates are previously sensitized, and they are brought into

position by a clockwork moved by a weight. The opening of the shutter is determined by an electric current, which also ignites a magnesium flash.

Carl Foge, Carl Griese, and Joseph Roders, of Hamburg, have patented an apparatus actuated by clockwork; this has a dial, like the Enjalbert apparatus. The Fischer apparatus is not greatly different from the preceding; the movement is entirely mechanical. The Joel apparatus is a modification of the Canto pattern. A last form is one



Fig. 5.

patented in January by Fisher and Macfarlane, in America; the clockwork movement is divided into four parts, acting successively.

Of all these forms, two only are provided with flash-lamps, which would seem, however, to be necessary to all; since all operations which occupy a time fixed in advance, need to have the intensity of the light uniform, if uniform results are to be had; which can only be secured with artificial illumination.—*Translated by C. W. C., from "Les Inventions Nouvelles."*

A FATHER LOCATES HIS DAUGHTER BY HER PHOTOGRAPH.

San Francisco, May 13th.—That truth is stranger than fiction is again proved in the case of a man who, on Monday last, found a daughter, of whose existence he was ignorant until a few days ago.

In 1867 Francis B. Lane, then a young merchant of Chicago, won one of the belles of that city, and, from the time of their marriage in September of that year until the following March their life was happy.

One day Lane went down town as usual to his office and on his return at night found his home dark and empty. He searched all over the house, calling in vain for his wife. The police were notified and the whole city of Chicago was thoroughly searched, but no trace of the missing wife could be found.

The days passed into months and the heart-broken husband was well-nigh in despair when word reached him that a woman resembling his wife had been seen in New Orleans.

Thither Lane went, only to find her gone to Havana, and on reaching that city she eluded him until in despair he returned to Chicago.

Some three years passed, when a friend told Lane he had seen his wife in London, and he at once started for England. Here he was again disappointed, but continued following clews to Paris, Vienna and St. Petersburg, where all trace of her was lost.

This was in 1871, and from that year until last summer, when traveling in the East, Lane saw his wife's picture on a box of face powder, where it was placed as an advertisement, there had been no trace of her.

Lane communicated with the makers of the cosmetic, but could get no satisfactory reply as to her whereabouts.

In March last Lane was in the office of J. T. Weiner, in Chicigo, when his eye fell on the photograph of a young lady about twenty-two years old, and from the strong resemblance to his own features he was led to ask his friend who it was. He was told it was the wife of a nephew of his and that they were living in California.

The remarkable likeness to Lane was discussed by both men, and after hearing Lane's story his friend advised him to write to the lady, which he did, and made the discovery that she was his own daughter, born shortly after his wife left him in 1868, and of whose existence he was completely ignorant.

As soon as possible Lane arranged to come to this city, and arrived here on Monday last, and saw for the first time a daughter who had grown up and married, unaware of who her father was.

John Simmons, the daughter's husband, is a hard-working young man, and the young couple's cosy home in Oakland shows him to be a good husband.

Lane, who is quite wealthy, has arranged for his daughter and her husband to go to Chicago, where he intends placing the son in business.

When seen yesterday, just prior to his departure for the East, Mr. Lane said: "It is hard for me to realize that this lady is my daughter, but I am perfectly satisfied she is, and you may feel assured that I am rejoiced to have found her. I shall have her with me in Chicago just as soon as they can arrange to come."

The only way in which Lane can account for the strange conduct of his wife is from what his daughter says of her actions, which leads to the conclusion that his wife was the victim of a strange hallucination, and being possessed of considerable money kept traveling from place to place. —*Morning Journal.*

Wuestner's Bath for Clearing and Reducing.—Take of a saturated solution of white alum, 32 ounces; and add sulphuric acid, C. P., ½ ounce.

After the negative has been perfectly fixed, wash thoroughly, and then place in above solution for one minute, and rock gently. Then take out and wash again, and you will have a negative of the same appearance as a collodion plate, which will print after above treatment twice as rapid as it would otherwise.

For reducing use 1 ounce sulphuric acid instead of one-half, and leave the negative in the bath not less than five minutes.

There is no danger of blistering or firilling.

He Couldn't Do It.—Photographer—"Now put a pleasant expression on your face."

Customer—"Is that absolutely necessary? I lost fifty dollars at poker last night, and it's a pretty hard job to do what you say."

Notes and News.

The Boston Photogravure Co., formerly at 27 Boylston Street, Boston, has removed to 132 Boylston Street.

Mr. Falk, the photographer, sailed for Europe on June 10, by the "City of New York," to be absent several months.

Wilbur C. Brown has been elected secretary of the Boston Camera Club to fill the unexpired term of Mr. E. F. Wilder, resigned.

Mr. Newcomb, of Newcomb & Owen, photographic merchants, gave a lecture at the Yonkers Photographic Club, on art in photography. Mr. Owen managed the lantern.

Messrs. Zimmerman Bros., the reliable photographic merchants of St. Paul, Minn., have removed from Sibley Street to 375 Minnesota Street. Here they will carry one of the largest stocks of wholesale photographers' supplies of any house in the West.

A Fourth of July Excursion.—The members of the Manhattan Chapter of the Agassiz Association are reminded that the chapter will probably hold an excursion on the Fourth of July, and if any of them have in mind any place which they think would be suitable for our outing, they are requested to communicate the same to the secretary.

The World's Fair.—The construction department of the Exposition is authority for the statement that by the 4th of July 15,000 men will be at work on the World's Fair buildings in Jackson Park, and that a month later the number will be not less than 30,000.

The Eastern headquarters of the Exposition are in the Stewart building, corner of Chambers Street, New York. Colonel A. D. Anderson is in charge.

An Interesting Art Contest took place last Friday evening at the smoking concert of the Montclair Club. Mr. George Inness, Jr. made a large landscape in black and white on canvass, with charcoal and chalk in fifteen minutes, while Mr. Earle drew the portrait of President Burgess, of the club, in colors, in the same time. Many artists and amateur photographers were in the audience, and the entertainment was greatly enjoyed by all.

The Kinetograph.—The *Sun* says of Edison's new wonder: "The kinetograph is nothing more nor less than a photographic camera arranged in a new way to do new work. Its name implies its use. The name is derived from the Greek words meaning 'to move' and 'to write,' and the machine literally furnishes a complete record of all the motions made before it. It photographs action. As Edison says: 'The kinetograph does for the eye what the phonograph does for the ear.'"

Photographing Both Sides of a Machine at One Time.—A novel effect in photographing machinery is obtained by giving in the same photograph the two sides of a piece of machinery. This result is achieved by placing the machine before a mirror inclined at such an angle that the reflected image of the back of the machine and the direct image of the front when photographed together should appear superposed in the picture.

A Picture of Cleveland.—A life-size oil painting of ex-President Cleveland, by E. Johnson, a New York artist, has been hung up in the vestibule of the Executive Mansion. The picture is considered a fair likeness. It attracts considerable attention from visitors. After hanging in its present position for several months it will be placed among the portraits of former Presidents in the private part of the White House.

A Man who is the father of eight boys finds that they cost him a suit of clothes, from hat to shoes, once a week. Children cost money, and most parents find it is only a question of how much they can or will spend on them. But there is in New York a mother who has upset the rule. She has a little boy with an angelic face, and she keeps him before the camera half the time posing him as a cupid, as a Fauntleroy, or as a choir boy. The sale of his photographs nets her $500 a year, and the worst of it is she does not need the money.

The Best Portrait of Thoreau, the poet-naturalist, is not, the Boston *Advertiser* thinks, the weak crayon head made by Rowse in 1854, and engraved soon after Thoreau's death, nor the full-bearded face engraved from an ambrotype taken in New Bedford in 1861; but an ambrotype, or something of the kind, taken for Mr. Blake, of Worcester, about 1856, and never yet satisfactorily engraved. It represents Thoreau in full health and strength, just as he might be seen emerging from the pine forest of Maine, or a flowering swamp in Concord—his hair copious and tossed about, his face full and a little rustic, with all its indications of deep thought, and with a thin fringe of beard on his throat, which he wore not for ornament, but to protect his throat.

Told by a Camera.—On the night of August 20, 1890, the farm residence of Michael Shelby, near Wooster, was forcibly entered by four masked men, who bound and gagged Shelby and his aged wife, and stole cash amounting to $12,000. Mrs. Shelby died from nervous prostration brought on by the excitement of the robbery.

A detective bureau has just caused the arrest of Henry H. Binckley, his grandson, Harry Webb, and a son, Daniel Binckley, who are neighbors of the Shelbys. Daniel Binckley was, until a few weeks before the crime was committed, a member of the police force in Kansas City, Mo., where he was discharged.

Among the bills stolen was one of $1,000 denomination. Daniel Binckley's wife made a trip to Canada to get this bill changed. The Canadian bank officials, suspicious of her actions, took a snap shot picture of her as she was receiving the money. The men will be prosecuted for murder.—*Chicago News.*

The Mistake Made by Most Bridal Couples, when sitting for a photo, is that they insist on wearing white gloves. White, on a dark background, always shows much larger in proportion than it should, so the young man who stands beside his bride is astonished to find that his photograph represents him with hands the size of a five-pound ham. Of course he does not like the picture, but his objections are usually overruled by his young better half, who, as a rule, "takes" much better than he does. So he accepts the picture and explains to his friends that the hands were the fault of the photogragher. If a man is going to have his figure represented in a photograph, he should wear a pair of dark kid gloves, and then not allow his hands to get any nearer the camera than his face, for the nearer they are, the larger they will seem to be.—*St. Louis Globe-Democrat.*

The Scarf Camera is one of the most recent and ingenious of electrical fancies. The camera measures about six inches by four inches, and is fitted with half a dozen sensitized plates which revolve round an endless chain. It is attached to the scarf by an elastic band and a button. The lens, of course, is in the center of the pin, but it is such a small affair that one does not notice it. The pneumatic tube is hidden beneath the waistcoat, and the ball goes in the watch pocket. To take a picture, all you have to do is to get within three feet of your object, stand perfectly still, and press the ball for two seconds. Then to bring a fresh plate before the lens, turn the button at the bottom of the scarf till a slight click is heard. One might take one's own portrait tby putting he camera opposite one's face when sitting at a table and simply pressing the ball. The little pictures are a trifle larger than a postage stamp. A lady could wear the camera with a tailor-made dress. It is not a bulky article, and its weight only amounts to a few ounces.

The Reason of It.—"You often hear a person say on picking up a photograph that it does not resemble the person pictured," remarked a photographer recently. "The reason is very simple. Men's faces are from seven to twelve inches long and four to six inches wide. The face in a cabinet photograph is from one to three long and from one to two inches wide. The features are cramped or condensed into a small space, and in many cases the striking points in a person's face—the strongest points of identity—are partially, if not entirely, lost. They do not show up at the first glance, and it is only by long study of a photographer having accomplished the faculty of taking it all in at a glance that one can identify the original from the photograph. To see a person in a miniature picture as you would see him in life, with all except the color. Take a large and strong magnifying glass and focus it on the features. You will then see the shadow of the eyelashes, the hidden hairs of the beard, and many other points which will give you a far better idea of how the person looks in life than by studying the picture with the naked eye for hours."—*St. Louis Post-Dispatch.*

A Monkey takes their Pictures.—The season for the spring campaign of the travelling photographer has coldly opened, and a man who for many years past has had a monopoly of the district lying around High Bridge felt that, if he proposed to hold his own against an opponent who invaded his territory a week before he got there, it would be necessary to hire a more able and industrious assistant than the boy who has hitherto helped him to carry his camera. He began operations yesterday, attended by a tall, lean monkey, dressed in a red coat with brass buttons. His old servitor was there too, for the photographer had found it necessary to retain the lad to attend upon the monkey. Presumably the artist does the work, as formerly, but the monkey seems to be the genius of the camera. Mounted on a forked stick stuck into the ground, he inspects the position of the person about to be photographed, burying his hairy head under the cloth that covers the rear part of the instrument. Then he stretches forward his long arm and removes the cap. For, perhaps, two seconds he holds it in his hand, while he frowningly stares at the subject. Then he covers up the lens, and the picture is taken.

It is, perhaps, the first time that an ape has been responsibly engaged in the service of art, and, with the children at least, the innovation is very successful. The fact of having a photograph taken by a monkey is not only irresistibly attractive in itself, but the presence of the animal behind the camera effectually prevents the juvenile attention from wandering, and brings an intensely interested expression, often emphasized by too broad a grin, to the little face in front.

It is not expected that the rival photographer, with an improved instrument, and, perhaps greater skill in using it, can long make headway against the monkey.—*New York Sun.*

The Editorial Table.

From I. S. Brown, of Portland, Oregon, we have received two excellent yachting pictures, one being a moonlight scene, with an impressive cloud effect, well caught by the camera. They are 6½ x 8½ pictures, skillfully developed and well printed.

There is an interesting article by the late P. T. Barnum in the June number of the *North American Review*, concerning his impressions from his last visit to England. It will be read with deep interest by the great showman's host of friends in this country.

Volume 27 of Alden's Manifold Cyclopedia takes us from O'Fallon to Palmiped. Like its predecessors it is fully illustrated, and gives ample space to the subjects of importance of which it treats. The price remains the same, in half morocco 65 cents per volume. It is published by John B. Alden, of New York.

A New Edition of Scovill's Catalogue of Photographic Publications and albums has been issued. From it we note that the Scovill Photographic Series has extended to thirty-nine numbers, which includes works on well nigh every subject connected with photography. There is also a list of some twenty-five other publications relating to photography, which are especially valuable as books of reference. Wilson's well known photographic publications are also catalogued, and at the end there are several pages devoted to albums, etc.

Triete Elèmentaire de l'objectif photographique. E. WALLON, 1 vol. 8vo. Paris: Gauthier-Villiers et fils.

This is the latest treatise on Photographic Optics.

La théorie, la pratique et l'art en photographie, avec le procédé au gelatino-bromure d' argent. FREDERIC DILLAYE, 1 vol. 8vo. 214 illustrations. Cloth. Paris: Librairie Illustrée, 8 Rue St Joseph. 12 fr.

Volume 4 of the International Annual of Anthony's Photographic Bulletin, edited by W. Jerome Harrison, F.G.S., and Professor Arthur H. Elliott, with the assistance of W. I. Scandlin, and published by E. & H. T. Anthony & Co., comes to our table for review. The volume contains nearly five hundred pages of reading matter, and a number of full-page illustrations. The articles are by well-known photographic writers of this country and Europe, and the negatives from which the illustrations are made are the work of both professionals and amateurs. Among the pictures we notice one or two old friends; a half-tone study by W. Kurtz being of the same subject which embellished the "American Annual of Photography for 1891;" and the foot-ball illustration by J. C. Hemment is very similar to the one illustrating an article by that gentleman in the Christmas number of THE PHOTOGRAPHIC TIMES of last year. The tables which have been added to the volume at the end increase its value as a reference book, and the advertisements are also of value for reference. Price of the book is 75 cents in paper covers.

Carbutt's Orthochromatic Plates.—The excellent illustration by Julius F. Sachse, which accompanied his "Suggestion for a Possible Method of Identifying Colors Photographed" (read before the Philadelphia Photographic Society, and printed in the *American Journal of Photography*), we learn, was made on a Carbutt orthochromatic plate without color screen. It certainly is an admirable specimen of orthochromatic work. In regard to these plates Mr. Carbutt recently received the following high praise from Mr. Charles Truscott, of Philadelphia. Mr. Truscott writes as follows:

"Your orthochromatic plates are very satisfactory in my hands for the reproduction of paintings, etc. In fact, nothing better seems possible in monochrome, the values being all preserved in their true relation, and faithfully rendered. I have just completed the photographing of twenty paintings at the State House (the neglected condition of which you may remember), and the commendations I am receiving from the Washington Inauguration Centennial Committee, of New York, I want you to share with me.

"I have tested all the orthochromatic plates in the American market, and none of them save yours are able to come within a measurable distance of perfection."

Record of Photographic Patents.

453,313. Photographic Background. Charles Fredricks, Brooklyn, N. Y.

TRADE MARK.—19,610. Photographic Dry Plates. John Carbutt.

The Effect of the Photography Fad.—Mrs. Kamera: "What did you see at court to-day, dear?" Miss Belle (who has attended a trial for the first time): "The judge made a long speech to the jury of twelve men and then sent them off into a dark room to develop."—*Boston Post.*

Warning!—*Photographer:* Be careful how you handle that paper. You might hurt its feelings.

Visitor: Hurt its feelings?

Photographer: Yes, it's extremely sensitive!

"Photographic Optics."—"This number will prove a valuable addition to the Series [The Scovill Photographic Series]. We cordially recommend its study to those of our readers who are interested in photography and desire to have more than a superficial knowledge of the art."—*Illustrated Pacific States, San Francisco, Cal.*

Special Qualifications.—"I tell you, they're an attractive set, these photographers."

"For any special reason?"

"You see they have such *taking* ways about them."

"Yes, but they might be looked upon as thieves for the same reason."

A Wet Day Conversation.—*First Photographer:* Goethe must have taken an interest in photography up to the day of his death.

Second Photographer: Why?

First Photographer: Because his dying words were "Light, more light!"

Like a Hen.—"This doesn't suit me."

"Why, that's the fourth proof I've submitted to you. You're like a hen, you do so much *sitting.*"

Queries and Answers.

83 A. B. G. wants to know if varnishing negatives preserves them from scratches, stains and spots; and also if there is any danger of hypo appearing on negatives if not varnished, after a lapse of time.

83 *Answer.*—Negatives are varnished mainly to protect them from moist silver nitrate, which sometimes adheres to the plate, and ultimately stains the film. A varnished negative is just as likely to be scratched as one not varnished, though the varnish protects the films from some injuries that might otherwise be incurred. If hypo has not been thoroughly eliminated from the film it will eventually make its appearance in crystals, and break up the gelatine film whether it is varnished or not.

84 FRANK CRAYTON writes: "Please answer through the next issue of the TIMES a good fixing bath to harden the film on opal plates. I make my own emulsion. It works well if I had a fixing bath to harden the film."

84 Use the acid fixing bath, composed as follows:

Hyposulphite of soda	3 ounces
Water	15 ounces
Acid bisulphite of soda solution	2 ounces

(Sold under the name of "Clarifier" by Scovill & Adams Co.)

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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" " " one month's trial..... 50

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

NEW YORK CITY, May 31, 1891.

SCOVILL & ADAMS CO.

Gentlemen: I have one of your cameras and find it excellent. D. H. CUYLER.

THE catalogue with dainty covers just issued by Newcomb & Owen, 69 West 36th Street, New York, contains descriptions and prices of the photographic materials for amateur photographers which they carry in stock; also useful formulas, instructions for making carbon prints, platinum pictures, etc., etc.

ZIMMERMAN BROS. have removed from Sibley Street to 375 Minnesota Street, where they carry the largest stock of wholesale photographers' supplies of any house in the West. They carry a full line of cameras, both for the professional and amateur trade.

Their removal marks the twentieth anniversary of their business career in St. Paul, and during that time they have gradually built up a large trade, until now they employ several traveling men and compete with the largest houses in the country. They occupy the basement and two floors in their new spacious quarters, which renders it more convenient than their former location.

As a special feature they have fitted up a large printing office in connection with their store, for the exclusive purpose of photographic printing.—*St. Paul Daily News.*

Studio Changes.

Donnellson, Ia. Isaac A. Bell has moved away.

Business Notices.

HERE IS A FORTUNE, YOUNG MAN! $300 for my gallery; well furnished. Must go away.
BOX 139, Vergennes City, Vt.

FOR SALE (CHEAP).—One photographic outfit in gallery, complete, together with a good thriving trade. Location good; no opposition. For particulars address
E. G. DELOE, Knox, Pa.

CRAYON WORKER WANTED—One who can retouch preferred; also an assistant operator and bromide worker. Write, with references, to
C. H. GALLUP & CO., Poughkeepsie, N. Y.

BARGAIN! FOR SALE.—One 5x8 Blair Camera Company Single Swing Camera with one double dry plate holder; one 5x8 Blair Camera Company View Lens; one Blair Camera Company Tripod and Carrying Case. This outfit has never been used. Regular wholesale price $10.50. Will sell for $8, net. Address
L. A., Care of THE PHOTOGRAPHIC TIMES,
423 Broome Street, New York.

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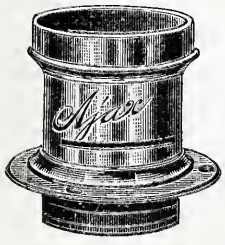
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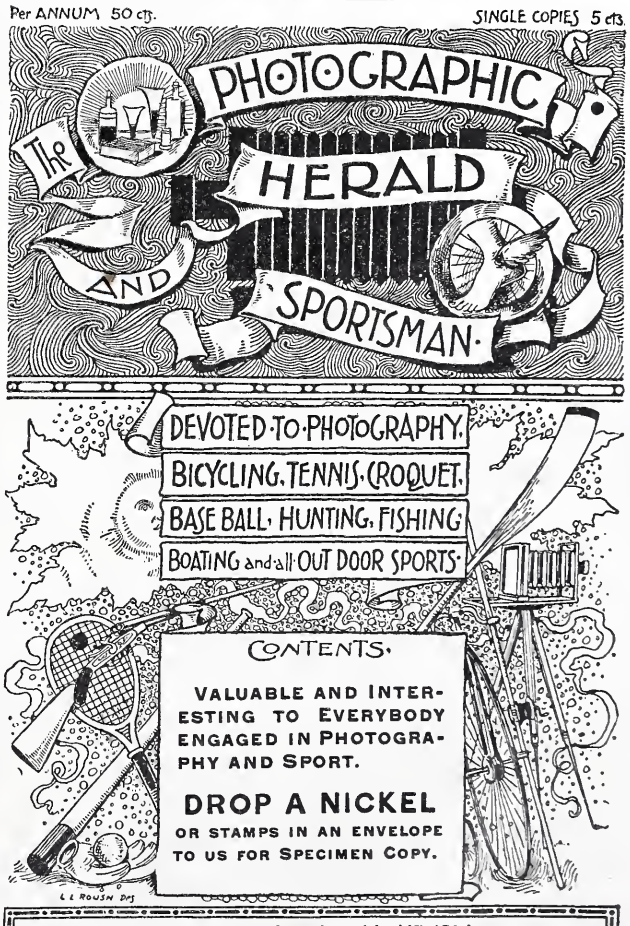
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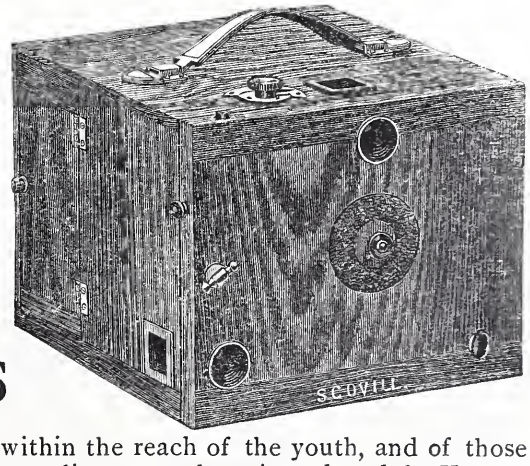
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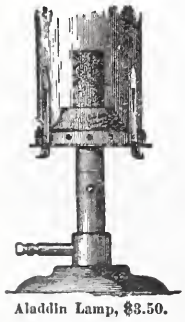
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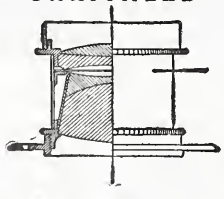
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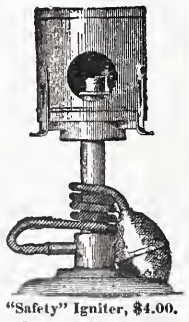
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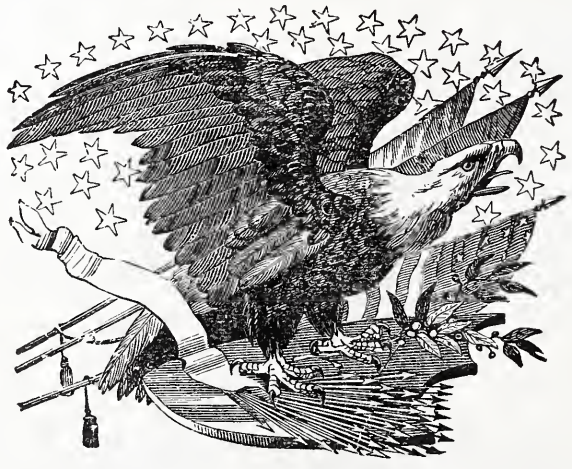
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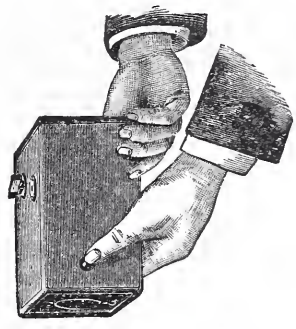
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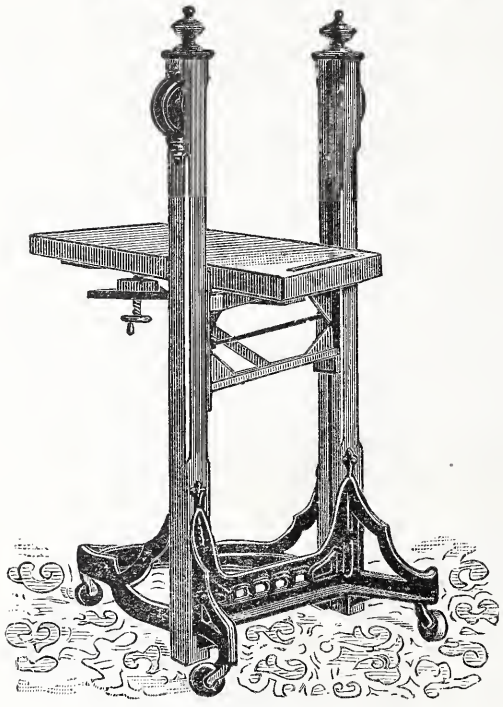
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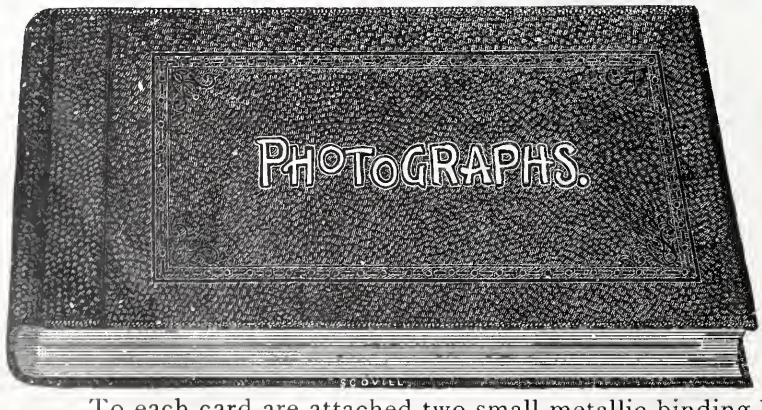
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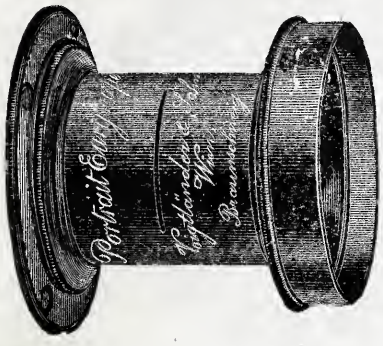
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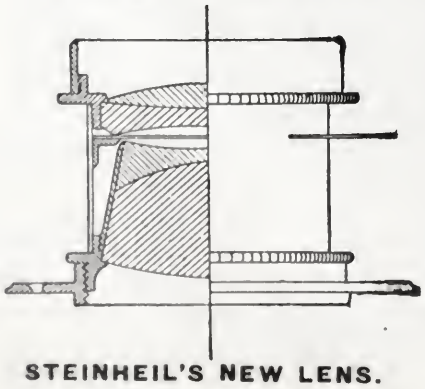
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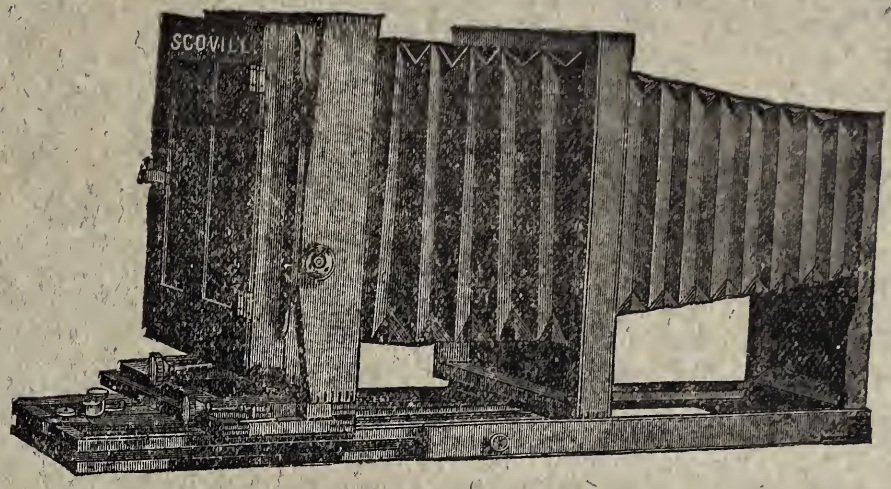
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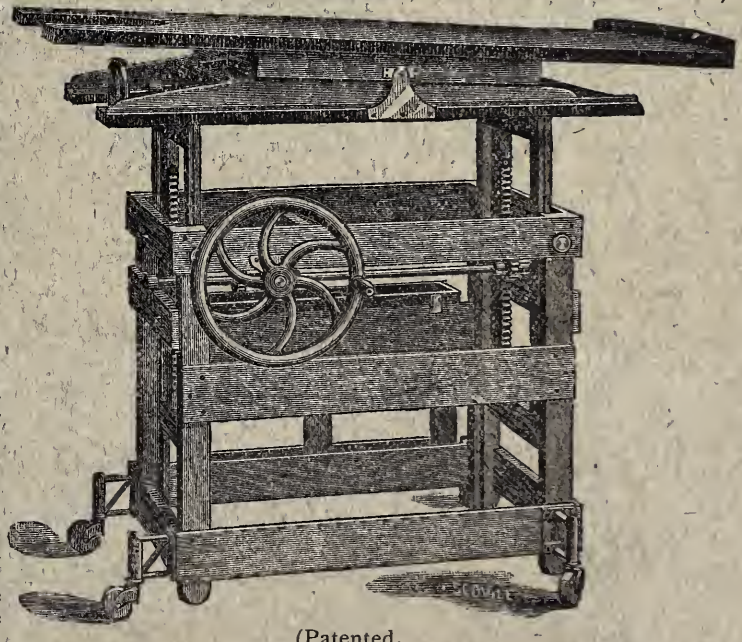
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PHOTOGRAPHIC TIMES (B.)



N.Y. PHOTO-GRAVURE CO.

MODJESKA

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, JUNE 19, 1891. No 508.

MODJESKA.

We take pleasure in presenting our readers this week with an excellent portrait of, all things considered, probably the greatest actress at present on the dramatic stage. Madam Modjeska is, it is true, most familiar to playgoers in comedy, but she is not less successful in the heaviest of tragedies. We see her here depicted as Lady Macbeth, in Shakespeare's profound tragedy. It is certainly a striking picture. The strong contrasts and sharp shadows, the pose of the figure, and its lighting, all go to make an impressive effect. It is moreover an excellent likeness of the lady who is depicted. The negative was made by Rösch, of St. Louis. It was exhibited at the Washington Convention of the P. A. of A., and met with wide praise at that time. We are glad to show our readers so successful an attempt in a somewhat original line of portraiture.

THE ALBUMEN PROCESS.

III.

The albumen process was well nigh abandoned in America by professionals when English photographers still adhered to and improved it; but it retained much popularity among our amateurs, and we find in *Humphrey's Journal* of December, 1856, correspondence from a Baltimorean, who says: "Whipple's albumen-honey process is undoubtedly the process for amateurs; it is all, or nearly all, that can be claimed for us." The war of a few years later, the enormous amount of business done at the time and the great rapidity required to finish work, were the factors leading the professional man to search for and to adopt rapid processes, more sensitive than those with albumen, and although a compromise between the two processes had been already attempted, collodion came out triumphantly at last.

The Photographic News of March 11th, 1859, stated that Mayall's process, heretofore described, was a standard upon which the others without honey had been founded. Ferrier and Negretti, whose diapositives enjoyed a great reputation, worked similar to Mayall, but found a thinner albumen film, produced by continously rotating the coated plate, and printing by contact in diffused light, very important conditions for fine results.

Dr. R. L. Maddox (*British Journal*, vol. viii, 336) added dilute phosphoric acid to albumen, and perfected by it clearness and transparency, sensitized and developed as usual, added experimentary caustic potash and oxgall to the albumen, but preferred phosphoric acid as a clarifier, on account of the better tones attainable with it.

John Craud, of Glasgow, who had claimed to make photographs upon albumen by exceedingly short exposures, and whose productions were acknowledged to be of very fine quality, adhered, like Mayall, to albumen without the addition of other substances, spread upon a scrupulously clean plate, and as a sensitizer preferred the potassium iodide to any other. Ammonium iodide offers no advantage whatever, excepting perhaps the accidental presence of free iodine and metallic iodides, like cadmium coagulating albumen, which is detrimental to clearness and transparency.

Iodide of cadimum when added to albumen turns it to a curdy mass, resembling sour milk. The presence of bromides he found to increase sensitiveness materially and the reproduction of fine details and middle tints better than without them. The proportions were: 1 ounce of albumen, 4 grains iodide, and 1½ grains bromide of potassium, with a modicum of free iodine. He coated the plate by rotating it, sensitized in a bath of 1 ounce distilled water, 45 grains of nitrate of silver, and 45 minims of glacial acetic acid, and thorough washing after sensitizing.

These plates would keep for a reasonable time, for two or three weeks certainly, and were developed with lukewarm gallic acid and a trifle of aceto-nitrate of silver.

Copyrighted.

The addition of honey to albumen had found very warm advocates, but many opponents also for various reasons, mainly so for its hygroscopic properties, and the consequent difficulty of drying the plate thoroughly before immersion in the silver bath; still its beneficial influence upon higher sensitiveness could not be denied, and several substitutes for it were recommended. Cane sugar and milk sugar, for example, also dextrin and gum arabic. Duchochois very cleverly proposed glycyrrhizine, a substance first employed by Hardwich, adding three drams of it to one ounce of albumen, claiming for it all possible advantages over honey, and justly so, because glycyrrhizine is a transparent substance, dries easily, is not hygroscopic, and is not liable to promote fermentation, which other saccharine substances will do.

F. Richards bathed his sensitized plates in a 2 per cent. solution of chloride of ammonium to increase sensitiveness and keeping quality; but James Archer added chlorides direct to the albumen for the same purpose, while others, as has been stated before, assert positively that chlorides in the albumen retard the developing process very materially. We can state from our own experience that a wet Whipple plate, chloride omitted and bromide added instead of it, will work nearly as rapidly as a daguerreotype plate, all other conditions being alike.

Coale and Shadboldt proposed to develop albumen plates with sulphate of iron and acetic acid; others added acetate of lead, with the intention probably to increase intensity, for iron developed plates were always flat and monotonous, never as brilliant and precise as those developed with gallic acid or pyrogallol.

We have so far given the outlines of various albumen processes as practiced by renowned photographers. The Ferrier-Soulier process, never published in detail, but by which most beautiful lantern slides and microscopic pictures have been made, is probably very much like Mayall's or Dr. Maddox's; but as similar good work has been done by others with pure albumen or the admixture of honey and similar substances, it is fair to suppose that not alone a good formula, but careful and accurate manipulation also is productive of good results. Many albumen workers have admitted the use of stale, even partly decomposed albumen, but we are inclined to think the whites of freshly-laid hen's eggs, from which the yolk has been carefully separated, is the first factor to attain to success. Secondly, a thoroughly coagulated film is an absolute necessity, and if an albumen plate is to be used in the dry state, all free nitrate of silver should be carefully washed from it. Time of exposure and intelligent development are, of course, of equal importance.

While the above-described experiments were being made collodion had settled firmly among us, and many of the admirers of the old process tried to combine the good qualities of both methods into one.

The outcome of the experiments were the collodion-albumen processes, of which we shall describe the most practical next week.

C. E.

EDITORIAL NOTES.

ALL readers of THE PHOTOGRAPHIC TIMES are, this year, as heretofore, cordially invited to cooperate with the editors in making "The American Annual of Photography and Photographic Times Almanac" for 1892. In order that all may understand just what is desired we reprint in full the invitation which has already been issued. We trust none were overlooked, but if any who is accustomed to write on photographic subjects has failed to receive a personal invitation, we hope such a one will consider this such an invitation and will show that no slight is taken where none was intended, by promptly sending in a contribution.

The invitation reads as follows:

Preparations for "The American Annual of Photography and Photographic Times Almanac" for 1892 have already commenced, in order to issue the book earlier this year than ever before, as it seems desirable to publish the work simultaneously in Europe and America before the Christmas holidays.

You are cordially invited to send an original article on some photographic subject of your own selection, and it is especially requested, in view of the earlier date of publication this year, that you will kindly prepare the article and mail it to us at your earliest convenience. As we hope to get a large part of the matter printed early, the work would be much facilitated if your article reached us before the first of September. It is also desirable, in view of the yearly increase in the number of contributions, that your article should not, if possible, extend beyond two pages (about 1,000 words), and that it be as much briefer as is consistent with a proper treatment of the subject.

Cuts or other illustrations, where necessary, will be reproduced to accompany the articles, and, as heretofore, a copy of the Author's Edition de Luxe will be forwarded you on publication of the work containing your article.

We desire to extend yet another invitation to our readers. They are all invited once more to compete for place with an illustration. The standard being higher this year than ever before, and the number of full-page illustrations to be accepted being probably no greater, it will be a more diffi-

cult matter as well as more honor to secure a place in the '92 issue of "The American Annual."

Send in your prints. They may be any size, by any process. They are only to show the picture. When accepted, the negative will be required and the process best suited to the individual picture will be used in reproducing it for "The Annual."

Figure compositions stand the best chance of acceptance, though good landscapes, marine and other pictures will be required. Portrait studies are desirable, especially child portraits. One picture will be the illustration of a poem by an American poet.

Here is a wide field for the best work. "The American Annual" proposes to establish a standard in this matter superior even to that maintained by the Photographers' Association of America.

Amateurs and professionals are alike invited to compete. The best picture in every class will receive the place. There will be a fair field and no favor. And the winner in every case will receive a special copy of the superb Author's Edition de Luxe.

Responses to the editor's invitations for articles for "The American Annual of Photography and Photographic Times Almanac" for 1892 are now being received in considerable numbers. Those who cannot write this year express the friendliest interest in the work and a high estimation of its value. Pierre Petit, of Paris, for instance, writes as follows:

"It would certainly be a great honor to join my name to those of your many illustrious contributors, but as a son of old Europe I would have nothing to teach the sons of young America, who already take the lead in photography, an art originally French."

An American, Mr. Coleman Sellers, of Philadelphia, expresses himself in the following terms:

"The very attractive and useful volumes issued by you are quite desirable additions to any one's photographic library."

A correspondent sends us the following method for using discarded cabinet bust photographs for mounting small 4 x 5 pictures. The 4 x 5 print is mounted over the cabinet portrait, so as to cover the whole bust, and the white edge between it and the mount will then have the same appearance when burnished as if the smaller print were mounted on a cabinet piece of paper with the edge neatly marked out.

We call the attention of our readers to the programme of the forthcoming Buffalo Convention of the Photographers' Association of America, also hotel rates, railroads, etc., as announced. President Hastings writes us that this programme will be modified more or less between now and the convention, and that at least a number of other papers to be read will be announced.

PROGRAMME OF THE BUFFALO CONVENTION.

First Day, Morning Session, 9 A.M.

Calling Convention to order.
1st. Address of welcome by Mr. H. McMichael.
2d. Roll Call.
3d. Reading of the minutes of the last meeting.
4th. Report of Standing or other Committees.
5th. Selection of location for the next Convention.
6th. Appointment of Committee on Nominations.
7th. Appointment of Committee on Awards.
President's Annual Report.

Second Day, Morning Session, 9 A.M.

1st. Reading of Communications.
2d. Report of Committee on Nominations.
3d. Report of Special Committees.
4th. Unfinished Business.
5th. New Business.

Afternoon Session, 2.30 P.M.

1st. Posing and Lighting.
2d. Backgrounds and Accessories.
3d. Art Photography.
4th. Orthochromatic Photography.

Evening Session, 7.30 P.M.

Art Criticisms on Photography, illustrated by the aid of the Stereopticon.

Third Day, Morning Session, 9 A.M.

1st. Reading of Communications.
2d. Unfinished Business.

3d. New Business.
4th. Report of Committees.
5th. Election of Officers.

AFTERNOON SESSION, 2 30 P.M.

1st. Developing.
2d. Retouching.
3d. Dry Plate Photography.
4th. Bromide Printing.

EVENING SESSION, 7.30 P.M.

Practical Flashlight Photography.
Demonstrations of several lamps and the merits of the same will be shown by throwing on the screen, with the aid of the Stereopticon, the results of the different exposures.

FOURTH DAY, MORNING SESSION, 9 A.M.

1st. Reading Communications.
2d. Reports of Committees.
3d. Unfinished Business.
4th. New Business.
5th. Announcement of awards.
6th. Adjournment.

The above is subject to slight changes, and in addition to the above there will be several papers read on different subjects, which will be well worth listening to.

THE HOTEL RATES.

The hotel rates as given to the members of the Association are as follows :

The Iroquois (headquarters), $3 per day, and upwards.

The Broezel, $3 per day and upwards.

The Tifft, $2, $2.50 and $3, in accordance to the room and location. Two persons in a room $1 50 per day each. One double bed.

The Genesee, $3 per day and upwards.

RAILROAD RATES.

The Committee on Railroads have secured special rates of one and one-third fare for round trip, from all points to Buffalo.

Obtain from your railroad ticket agent a return coupon, which, when properly signed by the treasurer (P. A. of A.) at the Convention, will allow a discount on the return trip.

There will be an excursion to Niagara, on Saturday, A.M., July 18th, and due notice will be given during the Convention as to arrangements for the same.

From all sources come the reports that it bids fair to be the most successful convention yet held.

Geo. H. Hastings,
Prest. P. A. of A.

Second Vice-President Mr. Stuber informs us that a large display from the studio of H. P. Robertson, of Tunbridge Wells, England, has just been received, and will be exhibited at the Buffalo Convention. No photographer can afford to miss seeing this display.

THE TONING OF PHOTOGRAPHS CONSIDERED CHEMICALLY, HISTORICALLY, AND GENERALLY.

CHAPTER XI.

SOME GENERAL NOTES ON TONING.

THREE COMMON MISTAKES IN TONING.

(1) *Taking the print out too soon.*—If the print be removed from the toning bath at too early a stage, a sufficient deposit of gold will not have taken place. The fixing bath dissolves out the dark "reduction products," and the gold which is left is not sufficient to give "body" to the picture.

(2) *Leaving the prints in too long.*—When an ordinary toning bath is working well, the prints will usually be satisfactorily toned in from ten to twenty minutes. If they be left in the bath for (say) twice this time, their tone after fixing will be a slaty-blue, and they will have a feeble and "washed-out" appearance. The reason is that nearly all the silver in the print has been replaced by gold. Now it is to the combination of hues afforded by the dark ruddy silver underneath, covered over by a layer of bluish gold, that we owe the fine purplish-black tones which are esteemed by most connoisseurs. But the gold *alone*, or nearly alone, is unable to produce so good an effect.

(3) *Using a toning bath too strong in gold.*—If too much gold is used in the toning bath we get the same bluish feeble prints as described in the last paragraph, and from the same cause—to complete a replacement of the silver by the gold. Our aim in toning must be to coat or gild the silver and not to entirely substitute the gold for it. For, although the prints might in the latter case be more permanent, still a pleasing tone must be our first, though not our only aim. As a rule the toning bath should not contain more than one grain of gold to ten ounces of water.

TONING WITH A BRUSH.

Where it is desired to experiment on the properties of a toning solution the method of toning with a brush will be found very economical. Wet a piece of clean white paper, the size of the print, and lay it upon a sheet of glass; place the print to

be toned upon this white paper, face upwards. Put a little distilled water in a test tube, and add a drop or two of a solution of carbonate of soda, so that the liquid just turns red litmus paper blue. Then add *one drop* of a solution of chloride of gold;* apply this solution to the print by means of a camel-hair brush. If the print is a very large one, of course a larger vessel than a watch-glass may be used to contain the toning solution, which, in such a case, might be applied by the broad brush called "Blanchard's brush," which is made by fastening a strip of swansdown calico or Canton flannel to the end of a strip of glass of the desired width, the material being bent over or wrapped round the end of the glass; or a "Buckle's Brush" may be used, which is made by drawing a tuft of cotton-wool (by means of a piece of string or a silver wire) into the end of a glass tube about half-an-inch wide. It will be found that the small quantity of toning solution, made up as described above, will tone well one—or even two—half-plate prints. This "brush-toning" method was described by Mr. John Heywood as early as 1859.

What to Do with Old Untoned Silver Prints.

When silver prints are kept several days before toning, it usually happens that the whites assume a yellowish tint, which is unaffected by the subsequent processes of toning and fixing, and which mars the beauty of the finished results.

In such cases, an improvement, or cure, can be effected by immersing the prints *before* toning in a bath containing three drams of ammonia to a pint of water; wash the prints in a similar bath *after* toning; and a like quantity of ammonia should be added to the fixing bath.

Rules for Toning.

1. The prints to be toned should be printed slightly darker than they are meant to be when finished; and no part should remain quite white.

2. For the acetate bath, wash the prints thoroughly (including one rinse in very weak salt water) before toning. For the other toning baths, wash in three changes of water only (total time of washing not to exceed ten minutes).

3. Make up the toning bath with distilled water (use filtered rain-water if this cannot be obtained).

4. The toning bath must not be colder than 60 deg. Fahr. (65 to 70 deg. Fahr. best—test with thermometer); it must also be neutral or slightly alkaline (slowly turning red litmus paper blue); an excess of the alkali is, however, to be avoided.

5. Immerse each print separately in the toning solution. Do not tone more than six prints at a time, and frequently move the prints about, placing the bottom print on top, and so on. Rock the dish frequently.

6. *Trim* the prints *before* toning.

7. Wash the prints in three or four changes of water *after* toning.

8. Remember that good and black tones can only be obtained from really good negatives. Be content with brown tones from thin or poor negatives.

9. Always use the same dish for toning; mark it and never use it for anything else.

10. After your fingers have been in the hypo bath, they must be well washed and brushed before being again immersed in the toning bath. A mere trace of hypo spoils the toning.

11. For ready-sensitized paper, let one of the waters in which it is washed before toning contain a little carbonate of soda ($\frac{1}{2}$ ounce to 1 quart).

12. In making up a toning bath, always add the chloride of gold *last*, after the other ingredients have been completely dissolved. The bath must never be used until it is *quite* colorless. Keep the acetate bath at least twenty-four hours before using.

13. Judge the tone of a print by weak daylight; and look through the print, holding it up to the light.

14. Quickly rinse the prints *after* toning, and then leave them to soak in a bath of very weak salt water (half an ounce salt to gallon of water); this stops the further toning, which would otherwise take place.

15. Always keep your toning baths in clean stoppered bottles, having brown paper pasted round them to exclude the light.

16. Touch the sensitized surface of the paper as little as possible with the fingers, especially *before* they are toned. The perspiration from the skin prevents the proper action of the toning solution and causes reddish marks to appear, which are most conspicuous on the dark parts (shadows) of the print.

17. Freshly sensitized paper is the easiest to tone and to get black tones upon. Ready sensitized paper does not tone so easily after keeping two or three months; and it is often sensitized upon too weak a bath of silver nitrate. The borax bath gives the best results with ready sensitized paper.

18. If the prints *blister* during or after toning, they can generally be cured by transferring the

* The strength of this solution is not very material. I always put a fifteen-grain tube of gold into a stoppered bottle containing 7½ ounces of distilled water, and break the tube by shaking the bottle. There is then one grain of gold in each fluid ounce of this, the stock solution.

prints direct from the toning bath into a mixture of methylated spirit four parts and water one part.

19. Paper that is too *dry* will not give easily toned prints. The paper should be kept (if very dry) for an hour or two before it is put into the printing frame in a *damp* cellar, etc.

20. Toning baths weak in gold take longer to tone the prints, but produce better tones than baths rich in gold. Never exceed the preparation of one grain of gold to eight ounces of water; in most cases the same amount of gold to ten or twelve ounces of solution will give even better results.

W. Jerome Harrison.

(*To be continued.*)

Correspondence.

A CORRECTION.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: In the last number of THE PHOTOGRAPHIC TIMES it is stated that *all* the American exhibits had been refused. Please to correct this statement, as out of about thirty-five exhibits sent eleven were accepted. The names of the fortunate ones have not been sent to me as yet, Mr. Dumont and myself being the only two I know of so far. Shall send you the list as soon as it arrives.

Truly yours,

Alfred Stieglitz.

NEW YORK CITY, June 8, 1891.

[We are glad to hear of this. We were compelled to rely, of course, on European reports.—Ed. P. T.]

A FAIR THING TO DO.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: The question having been raised by a manufacturer of dry plates as to the right of use of letters A and B as applied to dry plates, and not considering the method of marking the degree of sensitiveness of sufficient importance to enter into any controversy in regard to the matter, provided that the method be distinct and plainly understood, we have decided to mark our plates 1 and 2—1 for our ordinary plate and 2 for our rapid plate.

It has always been the policy of the Harvard Dry Plate Company to respect the rights, real or supposed, of all; hence the change above shown.

Yours very truly,

The Harvard Dry Plate Company.

CAMBRIDGE, Mass., June 6, 1891.

IN A PHOTOGRAPH GALLERY.

Lady (with the elaborate politeness of extreme feminine wrath)—"Sir, might I be permitted to inquire what sort of pictures you consider these? My husband sat for them here two weeks ago."

Man at the desk (promptly)—"I consider them very bad pictures, madam."

Lady (fixing him with a scornful glance)—"Indeed? Then what do you mean by expecting people to pay the outside prices for such abominable work? Do you suppose for a moment"—

Man at the desk (smiling)—"But, madam, we"—

Lady (as before, only more so)—"No doubt you may find it amusing to make caricatures of people. But you cant't expect them to *pay* you for doing so. I have come here to tell you that you will either make a decent photograph of my husband or else"—

Man at the desk (smiling more and more)—"But, my dear lady, these pictures"—

Lady (indignantly)—"Not another word, sir, on the subject of these pictures! I would not have them at any price. It is your duty to"—

Man at the desk (trying wiih difficulty to restrain his laughter)—"If you will listen to me a moment"—

Lady (with flashing eyes)—"I will listen to nothing, sir! I insist that you shall make good"—

Enter proprietor from the sky-light.

Proprietor (regarding the grinning and apparently disrespectful man at the desk with a withering glance)—"What's the matter here?"

Man at the desk (handing photographs)—"This lady has just brought these pictures back."—

Lady (with dignified firmness)—"Allow *me* to explain to your employer. These photographs which you have made of my husband are simply a disgrace. At the prices you charge your customers certainly have the right to expect"—

Proprietor (also beginning to smile)—"My dear madam, you are mistaken"—

Lady (in a towering rage)—"Do you mean to tell me that you can't do any better than that for five dollars a dozen?"

Proprietor— "Ha, ha, ha! I can do better for three."

Lady—"Sir!"

Proprietor (emphatically)—"Much better."

Lady—"This is an insult. I shall take means—"

Proprietor (compelling himself to gravity)—"I beg your pardon, but these don't happen to be our pictures at all. They were taken at Smithson's, next door but one. We are Smithers. See?"

Lady (examining name on photograph)—"H'm!—er—well, I did make a mistake, certainly; but (energetically) I have not the slightest doubt—not the slightest—that if they had been taken here they would have been fully as bad or even worse. Good-morning!"—*Madeline S. Bridges, in Judge.*

A Foxy Youth.—"I'm to have my photograph taken today," she said.

"Indeed," he replied. "May I beg one when it is completed?"

"Oh, I couldn't think of letting you have one."

"Well," he said, resignedly, "I'm sorry." Then he added: "There is one thing the photographer won't need to do when he is taking your picture."

"What is that?"

"He won't need to tell you to look pleasant, for you always look pleasant."

"Perhaps I may be able to spare you one," she added, after a pause.—*New York Press.*

PERKINSON'S NEW GALLERY IN HARLEM.

Mr. L. C. Perkinson, well known to the photographic fraternity and indeed to the general public as proprietor of several flourishing photographic galleries, will open his new gallery on 125th Street, New York, some time during this month. This new studio will make one of the finest photographic establishments in this city, if not in America.

It occupies the entire floor of an immense double brick building on Harlem's Broadway, quite near the famous Boulevard. A short flight of easily ascending stairs takes the visitor from the street into an immense reception-room, which occupies a large part of the second floor. Ten wide windows light this magnificent room from the front, and eleven chandeliers illumine it at night. A commodious ladies' dressing-room, fitted with all the conveniences that the feminine heart could desire, adjoins the reception-room, and two large ante-rooms also connect with it, one for preserving the stock of pictures and the other for offices.

An immense operating room with its two enormous skylights connect also with the central reception-room. One light, the largest we ever saw in a professional studio, is for groups and large work, the other is for ordinary portraits. A commodious dark room adjoins one end of the operating room, and behind it is the toning room. Everything is fitted up in accordance with the most approved plans. The printing room is on top of the building. It is really a large glass house connecting with the roof, and may be used for printing in any weather. The immense roof itself may be employed for printing and other purposes in fair weather. A large white flag bearing the single word, Perkinson, surmounts all.

The inspection of this new studio was made in person, Mr. Courtney, the genial manager of Mr. Perkinson's business, conducting our representative over the premises. The old gallery at 113 West 125th Street will be carried on as heretofore, where Mr. Courtney tells us he makes nearly 200 sittings in a day. In the new establishment, of course, this number can be largely increased.

Notes and News.

Our Journal "is a journal of instruction and amusement second to none in its aim," according to the *Montclair Daily Journal.*

Col. George Ayres, the well-known photographic commercial traveler, has sailed for Europe.

English Humor.—Wanted: A young widow lady desires re-engagement. Used to entire control of reception-room, books, correspondence, etc. Good spotter. Age 26. Address M., 131 The Grove, Hammersmith, London, W.—*British Journal.*

Flash-light Photography enables the angler, returning home late at night, to photograph his fish before they have shrunk. We have seen some excellent examples of such work. It leaves no allowance for shrinkage overnight.—*Forest and Stream.*

A Summer School of Photography will be opened at Glen Park, Col., under the instruction of H. M. Williamson, a practical photographer of Denver. It is the intention of the promoters of this school to conduct it according to the principles underlying the Chautauqua movement, and the Colorado school will be, in fact, a kind of Rocky Mountain Chautauqua School of Photography.

The Chautauqua School of Photography will begin its summer course of studies on the Chautauqua Assembly Grounds about July 1st, as heretofore. Professor Ehrmann, the instructor of this school, will leave New York for Chautauqua about the 24th of June, as he will require at least a week on the grounds previous to the opening of the school, in superintending the extensive improvements which are to be made in the school headquarters. The school-room itself is to be considerably enlarged, the dark rooms will also be augmented, and an improved printing room will be fitted up. Altogether the Chautauqua School of Photography opens this its sixth annual summer course under more auspicious circumstances than ever before.

A Photograph of the Oldest Democrat in the United States, Jacob Steel, of Nicholson Township, was placed in the corner-stone of the new court house for Fayette County, Pa., which was laid with much ceremony at Uniontown. He was born on October 19, 1783, and will therefore be 108 years of age next fall. His first vote was cast for Thomas Jefferson for President in 1804, and his last vote in November, 1890, for Robert E. Pattison for Governor. He has voted the straight Democratic ticket for eighty-six years, never changing his politics through all the political upheavals and side-shows that have come and gone since the dawn of the present century.

Photography for Women has been recommended so often and so earnestly as a business that, now that some few are taking it up as a serious occupation, it is interesting to note the special differentiation of the pursuit which attracts the sex that wears and loves gowns. There are a few portrait photographers among women who meet with only moderate success, curiously enough, in posing their subjects, but find a field of usefulness in the picturing of children. There are springing up also dress photographers, whose business, though a new one, appeals so strongly to certain feminine instincts that the seeds of success seem likely to sprout and thrive. One of the two or three already established was saying: "So far my work has been mostly the reproduction of trousseaus. Brides come to me to be pictured in all their different wraps and hats and gowns. For a girl whose wedding came off last week I made twenty-six costume pictures. She had them bound into a wedding album. Of course it takes ingenuity to get variety of attitude and to bring out the best points of each toilet. I think women prefer to go to women on such an errand, because they think a man, down in the bottom of his heart, might conceal a smile."—*N. Y. Recorder.*

Professionals vs. Amateurs.—A photographer who has been in business in this city for many years was asked recently if the numerous amateurs engaged in his line of work had diminished the number of his patrons. He replied: "No; I do not believe it has. While the outfits which are furnished at such low prices are capable of producing very fair work, yet the services of a person skilled in the art are necessary to insure the best results, and photographers earn considerable money by completing the work which the amateurs have begun. The majority of these amateurs are attracted at the outset by the novelty of the work and look upon it for a while as a pastime, but most of them soon tire of it, especially after some of their unsuccessful attempts to produce good work have been ridiculed by their friends. The numerous labor-saving inventions which have been brought out by the large demand for inexpensive apparatus has had the effect of materially reducing the cost to the professional photographer, and has thus been of substantial benefit to those who depend upon their skill in the art for a livelihood."

A Spool Easel.—Easels come in all sorts of materials and prices, from 75 cents up to almost any price. The bamboo ones are among the cheapest, but some of oak can be procured for $2.50 and $3. Brass ones, suitable for gilt-framed pictures, range from $10 upward, and then come the elaborate and costly woods, ebony, teakwood and the rest. Still, one does not get an easel for the easel's sake. Its contents are the chief consideration; therefore if you cannot afford even a bamboo one get a plain pine easel, used by artists for sketching; give it several coats of common white, then one or two of enameled paint, touch it up with gilding if desired and put slender brass chains from the leg to the front uprights. There is another pretty sort of easel made out of spools run on steel rods and fastened together with a horizontal row or two of spools at the top and near the bottom. The spools are to be painted black, with lines of gold around where their edges touch.

Cabinet photographs, either of friends or from fancy subjects, can be placed behind glasses made to fit them, and having an easel back whose tiny clamps are just visible in front. Sometimes the lower part of the glass is decorated, but if one cannot paint, gild the edge of the photograph for a width of half an inch, arching the gilding line at the top, and place it behind the crystal. To frame a baby's photograph take a piece of water-color paper, 8 by 10 or 9 by 11 inches, with torn edges, and outline the place for the picture by an oval opening surrounded with daisies whose petals touch. Shade the frame from deep blue at the edge to white, outline the daisy petals with blue, making gilt centers, cut away all of the oval with a sharp knife, following the shapes of the petals, and put on a stiff back to hold the picture.—*Annie Isabel Willis, in Buffalo Times.*

The German Emperor Poses for an English Photographer.—Despite his constant busy life, the Emperor found time the other day to make an appointment with Photographer Russell, of London, to visit Potsdam and make a variety of negatives. Through a fortunate acquaintance with the photographer, a correspondent arranged with that gentleman to accompany him as an assistant. "We were received," writes this correspondent, "by a gorgeous equerry. Presently the Chamberlain appeared and said that the Kaiser would be photographed in the uniform of an English Admiral. A few moments later a midshipman, who was helping the Emperor in his dressing, came to inquire whether it would make a more effective result if his Majesty wore a cocked hat. We sent back word that the Prince of Wales in a similar instance had advised holding the hat in the hand.

"Five minutes after the return of the middy the Emperor himself stepped on to the veranda. He greeted us in English with a cheery, familiar 'Good morning.' The Kaiser placed himself entirely at the disposal of the photographer and followed his every suggestion. For a full hour his Majesty permitted himself to be taken in different poses, and during that time, standing within a few feet of him, I had an excellent opportunity to study his appearance. This observation convinced me that nothing is more foolish and unwarranted than the imputation that he is suffering ill-health. His face is ruddy and firm. His movements are rapid and his limbs powerful; his eyes are brilliant and full of expression, while his gestures are graceful and at the same time decided. He speaks English fluently, though tinctured with a strong accent.

"A small woolly dog tried its best to make a part of the Kaiser picture, and although we drove it away a score of times it just as persistently returned until finally the Emperor, who seemed very fond of the little creature, laughingly lifted it in his arms and one of the photos was made in that position. The Emperor requested the photographer to make a few negatives of him in the uniform of the Garde du Corps, both afoot and horseback. He put on the white galla dress of the Garde, wearing an eagle-crowned silver helmet. This latter he removed, on Mr. Russell's suggestion, holding it in his right hand. After this a magnificent black horse was led in. Several photos were made of him on the horse and as he dismissed us at the conclusion of the sitting, he thanked the photographer most agreeably, said the Empress desired to sit on Thursday next, and courteously saluting us, he galloped away."

Photographing the Empress of Germany.—Thursday was set for making a photograph of the Empress, and in accordance with the directions received from the Chamberlain, and in fact from the Emperor himself, on the occasion of a previous visit, your correspondent, accompanied by photographer Russell, took an early train for Potsdam, where the sitting was to be.

Arriving about 10 o'clock at the pretty little station where one leaves the cars for the royal palace, a comfortable coach was found waiting, together with the information that the Empress had not yet returned from Berlin, but was expected on the train that would immediately follow. Meanwhile we were accorded free run of the palace, in order that we might select a spot suitable to serve as a background for Her Majesty's portrait.

Granted this exceptional privilege, we naturally took time to look about us, and finally decided upon the royal billiard room as presenting the most picturesque possibilities.

Fifteen minutes after noon, and just that number of minutes late, the Empress entered the room. She greeted us in the most gracious and unaffected manner, speaking in English with much less accent than is detected in the English of the Emperor. She walked to the further end

of the room, where she saw we had arranged a place for her, and signified her readiness for us to proceed.

As she sat in an easy and graceful pose upon one of the chairs, with a portion of the rich, golden hanging forming a tasteful foil to her sea-green dress, she seemed every bit an Empress. While not beautiful she has a face which is attractive and charming. It bore a half-laughing expression, and the dignity in her manner was not abated in the least by the almost unceremonious ease with which she permitted Mr. Russell to arrange her dress and surroundings for the photograph.

The Empress wore magnificent pearls with this costume, and her neck and shoulders and arms were beautifully white and rounded.

When we had taken her in five different positions in this costume she left the room and presently returned wearing a dress of black lace, with a magnificent display of diamonds. In this costume we made six more negatives. At the conclusion of the sitting Her Majesty asked us a few questions concerning the photographs we had made of the Emperor, how the negatives had developed and whether we thought the likeness would be good. She then very graciously said that luncheon would be served to us before we left, and with the most pleasing thanks for our services she left us. A servant appeared who conducted us to the luncheon room, where we were served with a bounteous repast laid before us on a golden service.—*New York World.*

BRADY, THE GRAND OLD MAN OF AMERICAN PHOTOGRAPHY.

"BRADY, the photographer, alive? The man who daguerreotyped Mrs. Alexander Hamilton and Mrs. Madison, Gen. Jackson, and Edgar A. Poe, Taylor's Cabinet, and old Booth? Thought he was dead many a year."

No, like a ray of light still traveling toward the vision from some past world or star, Matthew B. Brady is at the camera still, and if he lives nine years longer will reach the twentieth century and the age of seventy-five. I felt, as he turned my head a few weeks ago between his fingers and thumb, still intent upon that which gave him his greatest credit—finding the expression of the inner spirit of a man—that those same digits had lifted the chins and smoothed the hairs of virgin sitters, now grandmothers, the élite of the beauty of their time, and set the heads up or down like another Warwick of the rulers of parties, sects, agitations, and the stage. As truly as Audubon, Wagner, or Charles Wilson Peele, Mr. Brady has been an idealist, a devotee of the talent and biography of his fifty years of career. He sincerely admired the successful, the interesting men and women coming and going, and because he had a higher passion than money, we possess many a face in the pencil of the sun and the tint of the soul thereof which otherwise would have been imbecile in description or fictitious by the perversion of some portrait painter. For the same reason, perhaps, Brady is not rich. He allowed the glory of the civil war to take away the savings and investments of the most successful career in American photography; his Central Park lots fed his operators in Virginia, Tennessee and Louisiana, who were getting the battle-scenes. It is for this, reason, perhaps, that he is at work now over the Pennsylvania Railroad ticket office, near the Treasury Department, and only yesterday he took the whole Pauncefoote family, to their emphatic satisfaction—minister, wife and daughters—as he took the Pan-American Commission officially. His gallery is set around with photographs he has made from his own daguerreotypes of public people, from Polk's administration down, for he was very active in the Mexican War, taking Taylor, Scott, Santa Anna, Houston and Walker, Quitman and Lopez. I thought as I looked at the white cross of his mustache and goatee and blue spectacles, and felt the spirit in him still of the former exquisite and good liver which had brought so many fastidious people to his studio, that I was like Leigh Hunt taking the hand of old Poet-Banker Rogers, who had once shaken hands with Sam Johnson, who had been touched for the king's evil by Queen Anne, and I had almost asked Mr. Brady about Nelly Custis and Lord Cornbury and Capt. John Smith.

"How old are you, Mr. Brady?"

"Never ask that of a lady or a photographer; they are sensitive. I will tell you, for fear you might find it out, that I go back to near 1823–24; that my birthplace was Warren County, N. Y., in the woods about Lake George, and that my father was an Irishman."

"Not just the zenith-place to drop into art from?"

"Ah! but there was Saratoga, where I met William Page, the artist, who painted Page's Venus. He took an interest in me, and gave me a bundle of his crayons to copy. This was at Albany. Now Page became a pupil of Professor Morse in New York city, who was then painting portraits at starvation prices in the University rookery on Washington Square. I was introduced to Morse; he had just come home from Paris, and had invented upon the ship his telegraphic alphabet, of which his mind was so full that he could give but little attention to a remarkable discovery one Daguerre, a friend of his, had made in France."

"Was Daguerre Morse's friend?"

"He was. Daguerre had traveled in this country exhibiting dissolving views, and Morse had known him. While Morse was abroad Daguerre and Niepce had, after many experiments, fixed the picture in sensitive chemicals, but they applied it chiefly or only to copying scenes. Morse, as a portrait painter, thought of it as something to reduce the labor of his portraits. He had a loft in his brother's structure at Nassau and Beekman streets, with a telegraph stretched and an embryo camera also at work. He ordered one of Daguerre's cameras for a Mr. Wolf, and felt an interest in the new science. Professor John W. Draper and Professor Doremus counselled me, both eminent chemists. It was Draper who invented the enamelling of a daguerreotype, and entered at last into the business, say about 1842–43. My studio was at the corner of Broadway and Fulton streets, where I remained fifteen years, or till the verge of the cival war. I then moved up Broadway to between White and Franklin, and latterly to Tenth street, maintaining also a gallery in Washington City. From the first I regarded myself as under obligation to my country to preserve the faces of its historic men and mothers. Better for me, perhaps, if I had left out the ornamental and been an ideal craftsman."

"What was the price of daguerreotyes forty-five years ago."

"Three to five dollars apiece. Improvements not very material were made from time to time, such as the Talbotype and the ambrotype. I think it was not till 1855 that

the treatment of glass with collodion brought the photograph to supersede the daguerreotype. I sent to the Hermitage and had Andrew Jackson taken barely in time to save his aged lineaments to posterity. At Fulton Street, bearing the name of the great inventor before Morse, I took many a great man and fine lady—Father Mathew, Kossuth, Paez, Cass, Webster, Benton, and Edgar A. Poe. I had great admiration for Poe, and had William Ross Wallace bring him to my studo. Poe rather shrank from coming, as if he thought it was going to cost him something. Many a poet has had that daguerreotype copied by me. I loved the men of achievement, and went to Boston with a party of my own once to take the Athenian dignitaries, such as Longfellow, whom I missed. In 1850 I had engraved on stone twelve great pictures of mine, all Presidential personages like Scott, Calhoun, Clay, Webster, and Taylor; they cost me $100 apiece for the stones, and the book sold for $30. John Howard Payne, the author of 'Home, Sweet Home,' was to have written the letter-press, but Leslie did it. In 1851 I exhibited at the great Exhibition of London, the first exhibition of its kind, and took the first prize away from all the world. I also issued the first sheet of photographic engravings of a President and his Cabinet, namely, General Taylor, in 1849. I sent this to old James Gordon Bennett, and he said: 'Why, man, do Washington and his Cabinet look like that?' Alas! They were dead before my time. I went to Europe in 1851 upon the same ship with Mr. Bennett, wife and son. His wife I often took, but the old man was shy of the camera. He did, however, come in at last, and I took him with all his staff once—son, Dr. Wallace, Fred Hudson, Ned Hudson, Ned Williams, Capt. Lyons—as I took Horace Greeley and all his staff, Dana, Ripley, Stone, Hildreth, Fry."

"Was the London Exhibition of benefit to you?"

"Indeed, it was. That year I went through the galleries of Europe and found my pictures everywhere as far as Rome and Naples. When in 1860 the Prince of Wales came to America I was surprised, amidst much competition, that they came to my gallery and repeatedly sat. So I said to the Duke of Newcastle: 'Your Grace, might I ask to what I owe your favor to my studio? I am at a loss to understand your kindness.' 'Are you not the Mr. Brady,' he said, 'who earned the prize nine years ago in London? You owe it to yourself. We had your place of business down in our note-books before we started.'"

"Did you take pictures in England in 1851?"

"Yes. I took Cardinal Wiseman, the Earl of Carlisle and others. I took in Paris Lamartine, Cavaignac and others, and Mr. Thompson with me took Louis Napoleon, then freshly Emperor."

I could still see the deferential, sincere way Brady had in procuring these men. His manner was much in his conscientious appreciation of their usefulness. Men who disdain authority and cultivate rebellion know not the victories achieved by the conquering sign of *Ich Dien*—"I serve."

Mr. Brady is a person of trim, wiry, square-shouldered figure, with the light of an Irish shower-sun in his smile. Said I:

"Did nobody ever rebuff you?"

"No, not that I can think of. Some did not keep their engagements. But great men are seldom severe. I recollect being much perplexed to know how to get Fenimore Cooper. That, of course, was in the day of daguerreotyping. I never had an excess of confidence, and perhaps my diffidence helped me out with genuine men. Mr. Cooper had quarreled with his publishers, and a celebrated daguerreotyper—Chilton, I think—one of my contemporaries, made the mistake of speaking about the subject of irritation. It was reported that Cooper had jumped from the chair and refused to sit. After that daguerreotypers were afraid of him. I ventured in at Biggsby's, his hotel, corner of Park place. He came out in his morning gown and asked me to excuse him till he had dismissed a caller. I told him what I had come for. Said he: 'How far from here is your gallery?' 'Only two blocks.' He went right along, stayed two hours, had half a dozen sittings, and Charles Elliott painted from it the portrait of Cooper for the publishers, Stringer & Townsend. I have had Willis, Bryant, Halleck, Gulian C. Verplank in my chair."

"And Albert Gallatin?"

"Yes, I took a picture of him who knew Washington Irving and fought him and ended by adopting most of his views. Washington Irving was a delicate person to handle for his picture, but I had him sit and years afterwards I went to Baltimore to try to get one of those pictures of Irving from John P. Kennedy, who had it."

"Jenny Lind?"

"Yes, Mr. Barnum had her in charge and was not exact with me about having her sit. I found, however, an old schoolmate of hers in Sweden who lived in Chicago, and he got me the sitting. In those days a photographer ran his career upon the celebrities who came to him, and many, I might say most, of the pictures I see floating about this country are from my ill-protected portraits. My gallery has been the magazine to illustrate all the publications in the land. The illustrated papers got nearly all their portraits and war scenes from my camera. Sontag, Alboni, La Grange, the historian Prescott—what images of by-gone times flit through my mind!"

"Fanny Ellsler?"

"She was brought to me by Chevalier Wykoff for a daguerreotype."

"Not in her Herodias raiment?"

"No; it was a bust picture. The warm life I can see as she was, though dead many a year ago."

"Did you daguerreotype Cole, the landscape artist?"

"I did, with Henry Furman. I think Cole's picture is lost from my collection."

"Agassiz?"

"I never took him up, through the peculiarity of his tenure in New York; he would come over from Boston in the day, lecture the same night and return to Boston by night. One day I said sadly to him: 'I suppose you never mean to come?' 'Ah!' said he, 'I went to your gallery and spent two hours studying public men's physiognomies, but you were in Washington City.' So I never got him."

"I suppose you remember many ladies you grasped the shadows of?"

"Mrs. Lincoln often took her husband's picture when he came to New York after the Douglas debates and spoke at the Cooper Institute. When he became President Marshal Lamon said: 'I have not introduced Mr. Brady.' Mr. Lincoln answered in his ready way, 'Brady and the Cooper Institute made me President.' I have taken Edwin Forrest's wife when she was a beautiful woman; Mrs. Sickles and her mother; Harriet Lane; Mrs. Polk. Yes,

old Booth, the father of Edwin, I have posed, and his son, John Wilkes, who killed the President. I remember when I took Mr. Lincoln, in 1859, he had no beard. I had to pull up his shirt and coat collar; that was at the Tenth Street gallery. Mr. Seward got the gallery for the Treasury to do the bank-note plates by conference with me. I took Stanton during the Sickles trial, and Philip Barton Key while alive. I had John Quincy Adams to sit for his daguerreotype, and the full line of Presidents after that. I took Jefferson Davis when he was a Senator, and General Taylor's son-in-law. Mrs. Alexander Hamilton was ninety-three when she sat for me."

"All men were to you as pictures?"

"Pictures, because events. It is my pleasant remembrance that Grant and Lee helped me out and honored me on remarkable occasions. I took General Grant almost at once when he appeared in Washington City from the West, and Lee the day but one after he arrived in Richmond."

"Who helped you there?"

"Robert Ould and Mrs. Lee. It was supposed that after his defeat it would be preposterous to ask him to sit, but I thought that to be the time for the historical picture. He allowed me to come to his house and photograph him on his back porch in several situations. Of course I had known him since the Mexican war, when he was upon General Scott's staff, and my request was not as from an intruder."

"Did you have trouble getting to the war to take views?

"A good deal. I had long known General Scott, and in the days before the war it was the considerate thing to buy wild ducks at the steamboat crossing of the Susquehanna and take them to your choice friends, and I often took Scott, in New York, his favorite ducks. I made to him my suggestion in 1861. He told me, to my astonishment, that he was not to remain in command. Said he to me: 'Mr. Brady, no person but my aide, Schuyler Hamilton, knows what I am to say to you. General McDowell will succeed me to-morrow. You will have difficulty, but he and Colonel Whipple are the persons for you to see.' I did have trouble; many objections were raised. However, I went to the first battle of Bull Run with two wagons from Washington. My personal companions were Dick McCormick, then a newspaper writer, Ned House, and Al Wand, the sketch artist. We stayed all night at Centreville; we got as far as Blackburne's Ford; we made pictures and expected to be in Richmond next day, but it was not so, and our apparatus was a good deal damaged on the way back to Washington; yet we reached the city. My wife and my most conservative friends had looked unfavorably upon this departure from commercial business to pictorial war correspondence, and I can only describe the destiny that overruled me by saying that, like Euphorion, I felt that I had to go. A spirit in my feet said 'Go,' and I went. After that I had men in all parts of the army, like a rich newspaper. They are nearly all dead, I think. One only lives in Connecticut. I spent over $100,000 in my war enterprises. In 1873 my New York property was forced from me by the panic of that year. The Government later bought my plates and the first fruits of my labors, but the relief was not sufficient and I have had to return to business. Ah! I have a great deal of property here. Mark Twain was here the other day."

"What said he?"

"He looked over everything visible, but of course not at the unframed copies of my works, and he said: 'Brady, if I was not so tied up in my enterprises I would join you upon this material, in which there is a fortune. A glorious gallery to follow that engraved by Sartain and cover the expiring mighty period of American men can be had out of these large, expressive photographs; it would make the noblest subscription book of the age."

"I suppose you sold many photographs according to the notoriety of the time?"

"Of such men as Grant and Lee, at their greatest periods of rise or ruin, thousands of copies; yet all that sort of work takes rigid, yes, minute worldly method. My energies were expended in getting the subjects to come to me, in posing them well, and in completing the likeness. Now that I think of it, the year must have 1839, when Morse returned from Europe, and soon after that Wolf made my camera. I had a large German instrument here a few weeks ago, and some one unknown stole the tube out of it, which cost me $150."

I reflected that this man had been taking likenesses since before the birth of persons now half a century old.

Brady lived strongest in that day when it was a luxury to obtain one's own likeness, and he had some living people who began with the American institution. John Quincy Adams, for instance, was a schoolboy at the Declaration of Independence, or soon after, but living to 1849, Brady seized his image in the focus of the sun. Had he been thirteen years earlier he could have got John Adams and Jefferson, too; and he missed the living Madison and Monroe and Aaron Burr by only four or five years. For want of such an art as his, we worship the Jesus of the painters, knowing not the face of our Redeemer, and see a Shakespeare we know not to have been the true Will or a false testament. Our Washington city photographer probably beheld a greater race of heroes in the second half of the nineteenth century than the first, but in the growth of the mighty nation has come a refined passion to see them who were the Magi at the birth of this new star. Before Mr. Brady was Sully the painter; before Sully, Charles Wilson Peale, working to let no great American visage escape, and in their disposition and devotion these three men were worthy of Vandyke's preserving pencil. The determined work of M. B. Brady resembles the literary antiquarianism of Peter Force, who lived in the city of Washington also, and the great body of collections of both have been acquired by the government.—*Geo. Alfred Townsend ("Gath") in the N. Y. World.*

THE PHOTOGRAPHY OF COLORS DESCRIBED ONE HUNDRED AND THIRTY YEARS AGO.

Our readers (says *Revue Scientifique*) know that quite recently M. Lippmann succeeded in photographing the colors of the solar spectrum. For that he lets them fall on a well-polished mirror, formed by the surface of a coating of liquid mercury, which reflects them. These reflected colors are then retained by a series of thin sheets, which, under the influence of the pose, are formed little by little in the interior of a sensitive film, thin and transparent, placed before the mirror.

M. A. de Rochas relates in the *Intermédiaire des Chercheurs et des Curieux*, that in 1760, a dreamer, Tiphaigne de la Roche, published under the title of "Giphantie," anagram

of his name, a curious little work, where the process is almost exactly described, as one will be able to judge.

Tiphaigne supposes himself transported into the palace of the Genii of the Elements, the chief of whom says to him: "Thou knowest that the rays of light reflected from different bodies form a picture, and paints these bodies on all polished surfaces—the retina of the eye, for example, water, and ice. The elemental spirits have endeavored to fix these fleeting images; they have composed a very subtle and very viscous substance which dries very quickly and hardens, by means of which a picture is formed in the twinkling of an eye. With this substance they smear a piece of cloth, and place it before the objects they wish to paint. The first effect of the cloth is that of the mirror; therein is seen all the bodies near and far the image of which the light can convey.

"But, what a glass could not do, the cloth retains, by means of its viscous coating, the images. The mirror portrays faithfully the objects, but does not retain their images; our cloths render them equally faithfully, and retain the image. This impression of the images takes place during the first instant of their reception on the cloth. It is at once taken away and placed in a dark place; an hour later you have a picture, the more valuable as no art can imitate its truthfulness, nor can time in any way injure it. We take in their purest source the substance of the light, the color which painters draw from various materials which time indubitably changes.

"The accuracy of the design, variety of expression, the more or less heavy strokes, the gradation of shades, the rules of perspective, all these we leave to nature, who, with that certain step which never fails, traces on our cloth images which delude the eye, and make reason doubt whether what is called reality is not another kind of phantom which deceives the eyes, ears, touch, and all the senses at one and the same time."

The elemental spirit next entered into some details regarding physics, first, concerning the glutinous substance which intercepts and retains the rays; secondly, the difficulties of its preparation and employment; thirdly, the action of light and this dried substance; three problems which M. de Rochas proposes to the physicists of our day and submits to their discernment.—*British Journal of Photography.*

The Editorial Table.

THE Photographic Paper.—"I have subscribed personally for THE TIMES for a year or more, and am satisfied that it is THE photographic paper."—*J. A. Dalzell, Middletown, Conn.*

Volume 28 of Alden's Manifold Cyclopedia maintains the interest in this excellent publication. It covers the ground from Palmistry to Perseus; is fully illustrated like its predecessors; and, being printed on good paper in clear type, is a marvel of cheapness at the price for which it is sold—in half morocco, 65 cents per volume. John B. Alden, of New York, publisher.

Photographic Optics.—This practical text book for the professional and amateur photographer is an important addition to photographic literature.—*The Fremont Journal.*

Record of Photographic Patents.

454,005. Screen for Magic Lanterns and Photographers' Use. Edward H. Parsons and Edward W. Frazer, Kane, Pennsylvania.

Queries and Answers.

85 DARK ROOM MAN.—Why can we not employ a collodion nitrate of silver bath of sufficient strength for the sensitizing of albumen paper? The bath is acid, of course, but I am thinking that should not be an ojection to use it for the purpose stated.

85 *Answer.*—The negative nitrate of silver bath is always more or less impregnated with iodide of silver, especially after long continued use. In floating albumen paper upon such a bath much iodide of silver is abstracted from it, because of chemical affinity. When iodide of silver is present in a proof, the toning action of the alkaline chloride of gold is very much retarded, and is by no means as energetic as upon pure chloride of silver paper, and the tone attained is at the best of a bluish or slaty color, warm tones being entirely out of reach. The acidity of the bath, if not excessive, can do no harm, and would be rather beneficial to the keeping quality of the paper.

86 BREMEN has shown several prints on collodion aristopaper. Although the general tone of these pictures is very pretty, red spots scattered over them are detrimental to good effect. How can these spots be avoided, and what is their cause? he asks.

86 *Answer.*—The paper has been handled with greasy fingers, by the operator, or perhaps by the manufacturer, and consequently the greasy nature of the spots repels the aqueous toning solution, preventing precipitation of gold. The red spots are actually untoned portions of the pictures.

87 A. P. has read of determining the strength of solution by means of the hydrometer. I do not understand how to do it, but like to. Will you kindly explain?

87 *Answer.*—The hydrometer is an instrument made of glass, for the determination of the specific gravity of liquids, and consists of a graduated stem, with bulb containing a weighed amount of mercury attached, and indicates the specific gravity of a liquid by the depth to which it sinks in distilled water. The denser the liquid the higher will rise the bulb. Hydrometers sold in photographic supply stores are generally graduated for solutions of nitrate of silver, each degree of the scale denoting one and sometimes two grains of the silver salt to the ounce of solution. From this fact we must infer that it is absolutely impossible to find the correct concentration of the solution of another body with the same instrument. A very interesting and instructive article on the same subject, "Hydrometer *versus* Balance," will be found on page 61, in the "American Annual of Photography" for 1890.

88 R. E. N. wants to know if a Waterbury B. lens works quick enough for instantaneous exposures.

88 *Answer.*—Yes, with stop not smaller than $\frac{f}{25}$, a moderate speed of the shutter, and a highly sensitive plate. Develop with eikonogen.

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AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

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"Yours truly,

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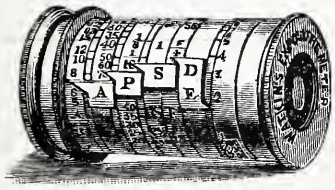
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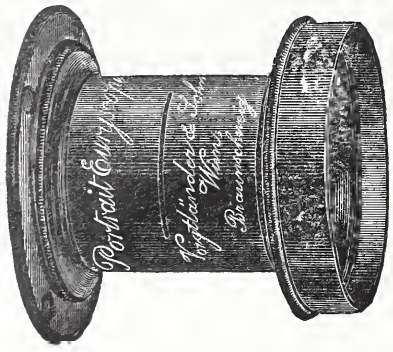
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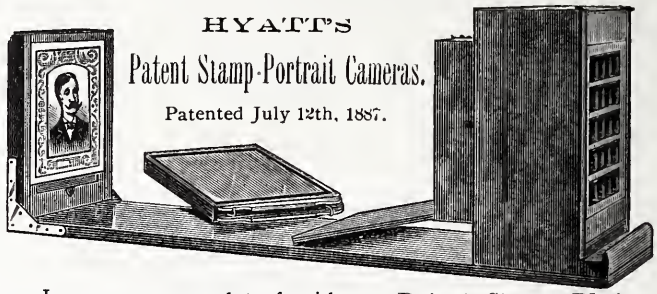
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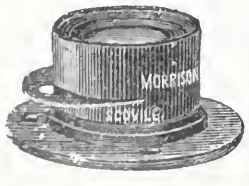
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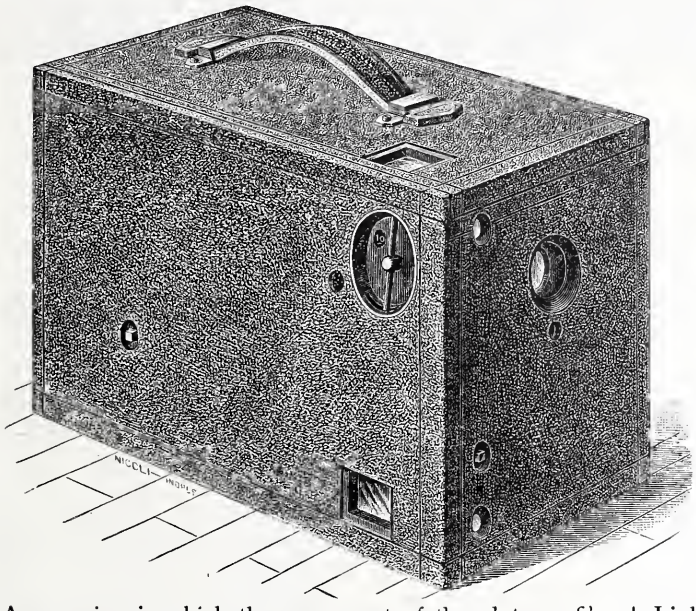
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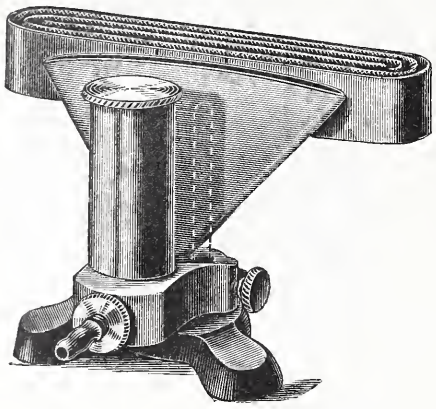
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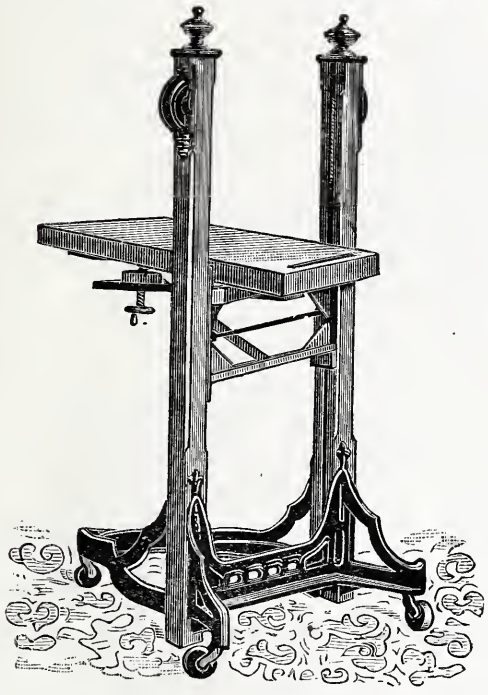
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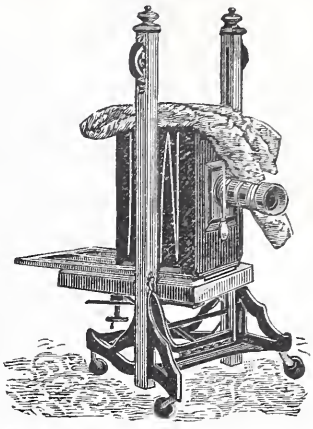
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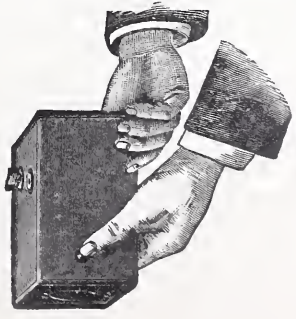
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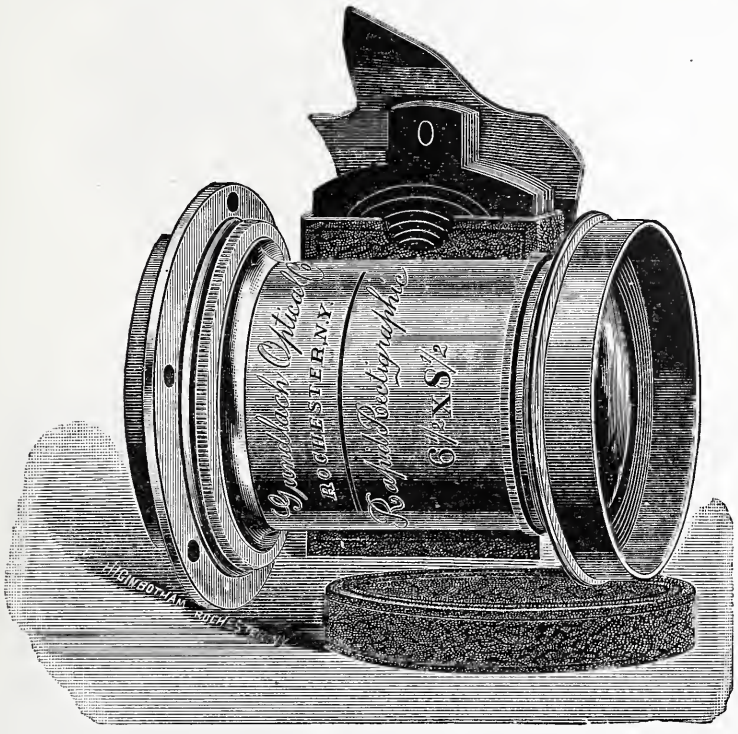
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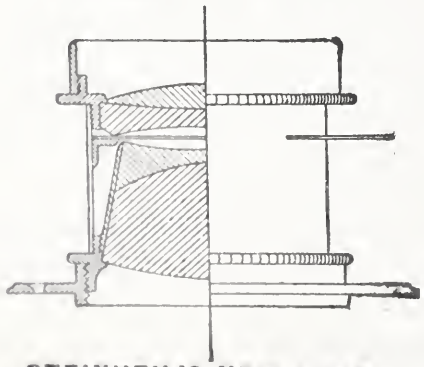
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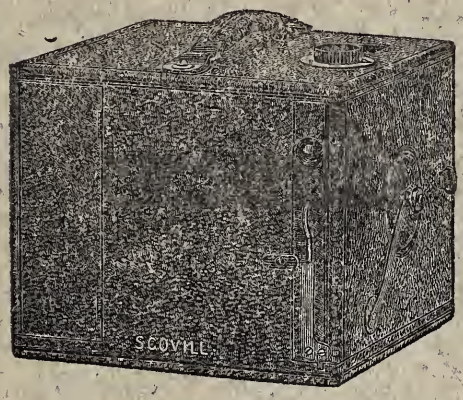
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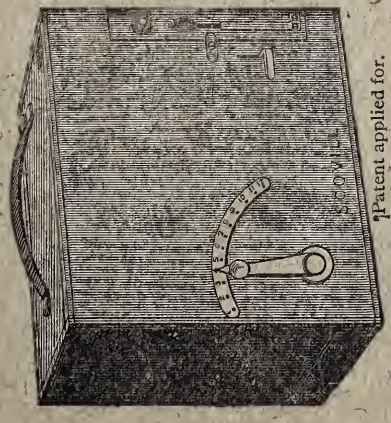
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R. Eickemeyer, Jr., Photo. F. Gutekunst, Phila.

THE ORACLE OF THE TEA CUP.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, JUNE 26, 1891. No. 510.

THE ORACLE OF THE TEA-CUP.

THERE is inherent in every human being a desire to know what lies behind the veil which hangs between the present and the future. We are all aware of the extent to which this art of divining was carried in early times. We have read of the famous oracles of Greece, with their ambiguous answers, and of the College of Augurs, which flourished later in Rome.

In this practical age we try sometimes—"just in fun," as we say—our fortunes at Hallowe'n, and hope there may be some truth in the rosy prospect foretold us. What is more natural than that the two young girls in our frontispiece should seek to draw from the oracle of the tea-cup an answer favorable to some momentous question.

The picture is from a negative by Mr. Eickemeyer, Jr., of Yonkers, N. Y., who has contributed so many beautiful frontispieces to this magazine.

THE ALBUMEN PROCESS.

IV.

M. TAUPENOT found that the greatest objection to the albumen process, its lack of sensitiveness, was obviated by pouring the albumen upon a plate previously coated with iodide of silver. In this way two layers of that sensitive salt are formed, and the sensitiveness of the surface layer, which alone receives the image, is promoted by its resting upon a substratum of iodide rather than upon the bare surface of the glass.

The instructions given by the inventor of the collodio-albumen process were imperfect, but the results obtained promised success, and only after English photographers had taken hold of it and experimented in various directions were uniform and excellent results obtained. Mr. William Ackland, the indefatigable researcher upon the field of photography, has the merit of having perfected the process. He read a paper on the subject before the Northampton Photographic Society in August, 1856, the substance of which is as follows :

The plates are cleaned with extreme care, washed with dilute nitric acid, then with dilute ammonia, and finally polished with alcohol and tripoli. After coating the plate with a normal good collodion it is in the usual manner sensitized in a silver bath of the following composition : Nitrate of silver, 1½ ounce ; iodide potassium, 3 grains ; carbonate of soda, 5 grains ; distilled water, 20 ounces—well mixed, filtered, slightly acidified with nitric acid and filtered again. With a drop of ammonia adhering to a glass rod perfect neutrality is obtained.

The iodized albumen compound is more complicated than any of the simple albumen processes we have described. To 10 grains of the whites of eggs, 1 ounce of honey and a tablespoonful of yeast is added, and 20 grains of iodide of calcium, 10 grains of bromide of calcium and 2 ounces water.

To keep the dust out a piece of perforated paper is tied over the bottle and the mixture is placed near a stove, where the temperature is not lower than about 90 deg. Fahr. Fermentation will soon commence ; when it ceases the whole is filtered through muslin, and is then ready for use.

Having allowed the sensitized plate to drain pour over its surface a mixture of 7 drams of iodized albumen, to which 1 dram of sugar syrup acidified with acetic acid has been added.

To mix the albumen thoroughly with the moisture of the plate pour off and on repeatedly. When all superfluous albumen has been drained off, the plate is reared on edge, dried, and is then ready to be plunged into the albumen silver bath, composed of 20 ounces of the collodion bath, ½ ounce glacial acetic acid, and ½ ounce of kaoline, which is allowed to settle in the bath dish. Kaoline prevents darkening of the albumen silver bath. After one minute's immersion the plate is lifted up and washed well to remove all nitrate of silver. The time of exposure required by these plates is much less than for pure albumen, but longer than that of

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a wet collodion plate. Developing is accomplished with acid pyrogallol and a small amount of acetonitrate of silver.

Ackland worked with his process very successfully and many of his countrymen adopted the method. In America Taupenot's collodio-albumen plate never became so popular. Fogged plates, blisters, stains and pinholes prevented it from becoming so, although a few enthusiastic amateurs had generally good results with it.

The Fothergill process was more extensively adopted, in the first place because of its much greater sensitiveness, and secondly because of its great simplicity. With a good collodion Mr. Fothergill coated an albumenized glass plate and sensitized in a normal silver bath of the same composition as used for every day work. After removal from the bath the plate was washed in small quantities of water, drained and gently flowed with a mixture of equal parts of albumen and water and a trifle of ammonia with it.

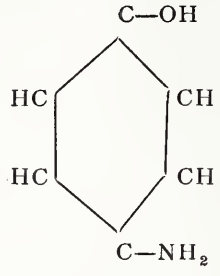
The chief points to be borne in mind seem to be that the washing of the film is simply to remove the nitrate of silver adhering to its surface, and that on no account must any attempt be made to displace that portion which has penetrated the molecules of the collodion. Pouring water upon the plate with any force, or violently moving it on the surface in the washing bath, will certainly be fatal to success. The combination of the albumen with the imprisoned nitrate of silver, and the probable formation of albumenate of silver, or of an extremely thin film of it insoluble in water, seems to establish sensitiveness and preserve it from change either by atmospherical influence, by heat or by chemical decomposition. Copious washing reduces sensitiveness, but it is advisable, when plates are to be kept for a long time. When prepared for immediate use or within a day or two, washing in small quantities of water, and by very gently moving the plate to and fro secures a sensitiveness almost equal to that of a wet collodion plate.

Fothergill's plates are developed with acid pyrogallol, citric acid being in our experience preferable to acetic. The great advantage of this over other collodio-albumen plates is that with the aid of an egg, and no other appliances than those found in a well conducted collodion laboratory, they can be prepared at an hour's notice. When well washed they keep for a long time. The writer himself shipped at one time 100 stereoscopic plates to California, and when they returned developed about 70 serviceable negatives from them. Their sensitiveness left nothing to be wished for in ante-gelatine times, and it is a fact not to be overlooked, that many pictures made out-doors were over-exposed, under-exposures being extremely rare. *C. E.*

PARAMIDOPHENOL.

THIS new developing agent of extraordinary force, of much better keeping quality than either eikonogen or hydrochinon, was recently introduced by Messrs. Auguste and Louis Lumiére, and the results of experiments made with it fully indorse what these gentlemen have said of it.

Paramidophenol is a derivative of phenol or carbolic acid, a product of the distillation of coal tar, and is prepared by the reduction of paranitrophenol or dinitrophenol with tin (stannum) and hydrochloric acid, crystallizes in fine needles, melts by 140 deg. C, is soluble in 90 parts of water and in 22 parts of absolute alcohol. Its composition may be expressed by this formula:



Paramidophenol in aqueous solution oxydizes rapidly when exposed to air, and more so when carbonates are present. To keep the solution for developing purposes therefore requires the addition of sodium sulphite, without which its color will change to a purplish violet.

The following formulas have been recommended for the development of bromide of silver gelatine emulsion plates:

I. Water	1000 parts
Crystallized sodium sulphite	200 parts
Sodium carbonate	100 parts
Paramidophenol	12 parts

Or, which is said to be still better :

II. Water	1000 parts
Crystalized sodium sulphite	200 parts
Lithium carbonate	12 parts
Paramidophenol	12 parts

The developer prepared by the first formula is extremely energetic, and is therefore well adapted for instantaneous exposures.

Paramidophenol presents the same inconvenience to the photographer as eikonogen and hydrochinon, a limited solubility, and in that respect cannot rival pyrogallol, which is soluble almost in all proportions ; but it does not stain the gelatine film as pyro does.

The solution keeps well for a very long time, even when exposed to air in open bottles, and negatives developed with it are perfectly free from stain or color.

The developing force of paramidophenol decreases but slowly, and four ounces of the solution are capable of developing successively from six to eight 5 x 8 plates without the least appreciable difference in tone or other quality.

The new developing agent is as yet quite costly, but, as with all other chemicals, its price will decrease in the same proportion as the demand for it increases.

EDITORIAL NOTES.

M. Guntz, in a recent number of *Comptes Rendus*, announces that he proposes to compare the subsalts of silver, which he has recently prepared, with the products of the action of light upon the normal silver salts. This comparison may be anticipated to furnish results of the greatest interest to scientific photographers, "the production of a subsalt" being the too parrot-like explanation, without sufficient bases of actual experiment, of many drawing-room theorizers upon photogenic decompositions. The very existence of subsalts has been much discussed of late years, an extremely small amount of actual experimental fact being on record. M. Guntz has prepared, however, he states, subfluoride Ag_2F, subchloride Ag_2Cl, subiodide Ag_2I, and subsulphide Ag_4S.

The determining of the exact details of the plans to be pursued in making the photographs for the great star-chart were the source of considerable amount of exacerbated discussion at the late Paris Congress; so much so, indeed, that, to allow the heated disputants time to cool down, the meeting was adjourned for an hour or two. One great bone of contention was the duration of the exposure to be given for obtaining stars of certain magnitudes. The conclusion come to was that, as, with a certain plate, these results had been obtained in a certain time, that time should be decided upon. What the result would be with other plates of different rapidities we should not like to venture to predict, not to speak of the fact that, according to one eminent astronomer, one of the foremost workers with photography and the telescope, the number of stars taken, on one plate, of a particular portion of the heavens may vary very greatly indeed, according to some little understood atmospheric conditions. There may be five hundred stars shown on one clear night, while on another, under apparently similarly clear conditions, two thousand may be indicated on the negative.

Before the Royal Society of London a most important paper was recently read upon some new compounds for sensitizers of the gelatine plate for rays of low refrangibility. Hitherto, the so-called eosin salts have been the main reliance of the orthochromatic plate producers. Eosin and erythrosine, used with the help of ammonia, form the subject of the patent held by Edwards; but the use of the new salts does not in the slightest degree infringe this patent. The former salt, as our readers are aware, is tetrabromfluorescëin, while the latter is a tetraiodfluorescëin; but the new salts are only allied in the most distant manner to the fluoxosceins, which belong to the phenol and naphthaline groups. Mr. Higgs' compound being an alizarine product, he takes a saturated solution of bisulphite of soda, and rubs it in a mortar with alizarine blue paste, pours the mixture in a bottle capable of containing an additional quantity of the bisulphite, in all ten parts of the paste to twenty parts of bisulphite, and another ten parts of water. The vessel is well stoppered, set aside in a cool place for five or six weeks, shaken daily, but left undisturbed during the last eight or ten days. This solution is decanted, filtered, and treated with alcohol to precipitate the remainder of the bisulphite of soda. Fifty parts of water are now added, with a sufficiency of chloride of sodium, to form a concentrated solution; again, set aside in an open-mouthed glass jar, covered with filter-paper for seven or eight days, the dye is deposited in a crystalline state, together with sulphite of calcium, which, being insoluble in water, may be removed by filtration. The resulting salt is further purified by recrystallization. We dwell fully upon this portion of the paper from the fact that these bisulphited salts of alizarine-blue may be obtained in commerce, but, as so found, are so impure as to be useless. Plates immersed in a solution of one in ten thousand, and one per cent. of ammonia, give the most perfect results the day after preparation; but they rapidly deteriorate unless kept quite dry. The great power of this new salt will be seen when we state that the author tells us that he has obtained in the great A of the second order spectrum photographs which possess all the detail and definition usually so characteristic of the violet end.

Ready with Proofs.—"There's no use doubting what a photographer declares to be so."

"Why not?"

"Because he always has a large number of proof on hand."

THE TONING OF PHOTOGRAPHS CONSIDERED CHEMICALLY, HISTORICALLY, AND GENERALLY.

CHAPTER XII.

THE LITERATURE OF TONING WITH GOLD IN PHOTOGRAPHY.

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SUTTON, T.—Gold *versus* Old Hypo; vol. ii (1855), pp. 121, 133.

HARDWICH, T. F.—On the Use of Salts of Gold in Photographic Printing; vol. ii (1855, p. 145.

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SPILLER, JOHN.—On the Action of Chloride of Gold upon Certain Salts of Silver; vol. xiv (1869), p. 91.

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——— ———.—Notes on Silver Printing; vol. xxxi (for 1884), p. 678.

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W. Jerome Harrison.

THEORY OF ORDINARY AND POLARIZED LIGHT.

[Abstract of a Communication to the London and Provincial Photographic Association.]

THE first part of the lecture was devoted to the history and comparative acceptability of the two theories of light, the corpuscular and the undulatory. The former was put forth as long ago as 460 B.C., by Empedocles, who was followed in the same line by Democritus and others. An expression of Aristotle, "Whether it be light or air which intervenes between the eye and the visible object, in all cases it is by the movement of this medium that we see," has been taken by some to contain the germ of the undulatory theory. Coming to more modern times, we find Gassendi, about the year 1600, developing the corpuscular theory. He says the "luminous bodies send out particles capable of acting on the eye just as certain odoriferous bodies send out particles capable of acting on the olfactory nerves." Descartes, about the same time, supposed space to be filled with particles touching one another ; the sun and luminous bodies push aside those particles nearest to them, and in this manner the impulse is transmitted in all directions instantaneously. Mallebranche and Grimaldi, fifty years later, held that light was transmitted by a kind of vortex motion, and that different rapidities in the vortices gave rise to the sensations of difference of color.

Huygens is, however, looked upon as the author of the undulatory theory. He supposed space to be filled with an extremely subtle and elastic medium, which he called luminiferous ether, which also fills the pores of matter. The vibration of this medium set up by the luminous body gives the sensation of light on the nerves at the back of the eye.

Dr. Young and Fresnel have the credit of placing the undulatory theory on its present firm basis. This theory affords the means of explaining phenomena which cannot be explained by any other theory. Moreover, predictions have been made, based on this theory, which subsequent experiments have completely verified. Huygens, though looked on as the father of the undulatory theory, yet put forth ideas as the character of the vibrations which are not now accepted. He supposed the ether to be affected by the luminous body in a similar way to that in which air is affected by sound ; this is, by waves of compression and rarefaction transverse to the direction of propagation. It was left for Young and Fresnel to show that the vibrations of the ether were not longitudinal, but transverse to the front of the wave, and this modification of the theory sufficed to explain what could not be explained either by the Huygensian or the corpuscular theory.

In ordinary light, particles are supposed to move in every possible direction, and not only in straight lines, but in circles and ellipses. The different distances between the vibrating ether particles give rise to difference of color, and are called wave-lengths, whilst the distance through which the particles move determines the brilliancy or intensity of the light. When two causes affect a wave, so that at one place the ether would be moving downward from one of the causes, and upward due to the other, interference takes place, and darkness results.

The reason given by Newton for accepting the corpuscular rather than the undulatory theory was that light did not travel round corners as sound did. It has been found, however, that light does travel round corners, and if Sir Issac Newton had been acquainted with more modern experiments, it is certain that he would have accepted the undulatory and abandoned the corpuscular theory, which, nevertheless, has the support of Biot and Sir David Brewster.

The death-blow to the corpuscular theory was dealt when it was shown that in a certain case one thing was required by the undulatory, and just the opposite by the corpuscular theory, and investigation proved that the requirements of the undulatory theory were those that were fulfilled. The case in point was the question whether light traveled more quickly or more slowly through a denser refracting medium. The experiments of Foucault, who ascertained the rate of movement of light both in air and in water, were illustrated by diagrams, and the result, showing that the rapidity was less as the medium was more refractive, was indicated as being of essential importance in establishing the undulatory theory.

The next point dealt with was the case of double refraction, and this was illustrated by diagrams, and by the exhibition in the lantern of crystals possessing this property. The differences between uni-axial and bi-axial crystals, and negative and positive crystals, were explained and illustrated, and then the subject of polarization was taken up. After discussing the nature of polarization, as the separation of the vibrations in different directions, it was explained that the angle to the normal made by any ray in order to be polarized when falling upon a reflecting surface depended upon the refractive index of the material. In the case of crown glass, this angle would be 54 deg. 35 min., and a reflector of this material, backed to present a

second reflection with a mixture of caramel and gelatine, was mounted at this angle and used as an analyzer with the lantern. The fact that the angle of polarization depended upon the refractive index of the material was a most important discovery, as it enabled us to ascertain the refractive index of a material in which, owing to its opacity, we could not otherwise succeed in getting it.

The construction of Nicol prisms was then explained, and their use demonstrated by experiment. It was mentioned that double refraction was not an exceptional case with crystalline bodies, but that freedom from double refraction was the exception, although, in most cases, the separation of the ordinary and extraordinary rays was so slight as not to be observed by the unaided eye. Double refraction depended on the material being under some strain, and an ordinary disk or glass was made to exhibit the phenomenon by heating it in the center and placing it in the lantern in the path of a beam before the heat had become equalized. The value of the method and the examination of glass for strain before grinding it into valuable lenses was pointed out and illustrated by a striking example.

The lecture was concluded by an explanation of the cause of the beautiful colors produced by thin films of selenite or mica. Whenever light passed through such a substance its vibrations were at once resolved into two sets at right angles to each other. If, therefore, the film were placed so that light passing through the polarizer vibrated in directions not those into which the film resolved vibrations, it did not pass. If the plate of selenite were just thick enough to retard one ray three half lengths of the red (corresponding to the Fraunhofer line B, whose wave length is 6867 10^{-8} cm.), this color would vanish, while the green (b=5165), for the production of which a retardation of two whole wave lengths occurs, attains its greatest brilliancy. A retardation of three half lengths of red equals four half wave lengths of green. Now, if the analyzer be turned through 90 deg. those rays which reinforce each other will be quenched, and those which quenched each other will be reinforced—that is, if in the first position the Nicols were crossed and the film appeared green, now that they are parallel the film will appear red, because the vibrations corresponding to the green are destroyed, and those corresponding to the red are superadded.

A. Haddon.

News of Royalty.—"The heir to the English throne must have had a large number of famous pictures taken of himself."

"What makes you think so?"

"I've read so much about the *prints* of Wales."

GENRE PICTURES IN PHOTOGRAPHY.

HALF fearful lest the sad fate of the boy Chatterton should overtake me, I venture to submit to the readers of THE PHOTOGRAPHIC TIMES a few suggestions from the note-book of Miss Blanche Madox Niepce Daguerre Brown, found on the deck of the "Mary Powell" last week. The young lady—and I infer she is young, since authorities tell us the inventive faculty wanes after one passes the twenty-fifth birthday, and evidently her inventive faculty is yet at its zenith—must have landed at West Point, for I did not pick up the note-book till we reached Newburgh, when, of course, it was too late to return it to the fair owner. I infer she is fair, although when she sees this publication she may think the reverse of me. Without slang, the Captain said he "had no use for it," when I showed it to him; and since one must never speak to the man at the wheel, even about photography, I went ashore with Blanche's property in my pocket, and as a salve to my conscience, I herewith give its contents to the wide world, making all who benefit by the theft participators in my dishonesty.

MID-SUMMER SNOW.

Two children, preferably a boy and girl, pelting each other with guelder roses, better known as snowballs. The back-ground might be a big bush of this kind, but spottiness should be avoided. Such a view would be best taken on a fairly rapid plate in the sun, using a shutter.

THE CART BEFORE THE HORSE.

Children, three or more in a farm wagon, comfortably seated on grass or hay, while an old horse—white preferred—is eating the grass out of the back unperceived. The shafts of the wagon rest on the ground, and the picture will give the best idea of rest, if it is taken in half shadow. The children's faces should not be much lighted, as interest centers on the horse, if he is busy eating. And particularly if he is white, a time exposure will be sufficiently quick.

GHOSTS.

This can be easily done by wrapping a person in a sheet, and letting him extend a long arm toward a frightened group. There is not much point to it,

unless one calls it Ghosts—non-photographic. A plain background, like leafy trees, for this.

"Warum in Der Ferne Schweifen Weun Das Gute Aegt so Nah."

A man with his head hid in a focusing cloth, standing awkwardly by a tripod, while a lovely girl in white sits on the grass looking up at him. Too much must not be attempted in expression, and it will probably be best to have the girl's head turned away from us, and toward the man. Choose for model some one with a pretty ear and well-shaped head.

Two Cherries at a Bite.

The rear view of a man walking with a girl on each arm. Avoid a wide angle lens in taking this, or the road in the foreground of the picture, on which much depends, *will* have the exaggerated effect of a wide open pair of compasses.

Here Blanche Madox Niepce Daguerre Brown breaks out into learned remarks; evidently the blood of all her ancestors stirs within her, so we blame her for nothing but her handwriting, which makes typographical errors inevitable. Scribbled across a torn leaf she says: "Correctly defined *genre* pictures include all subjects save historical scenes and landscapes, but one usually understands this school to limit itself to the portrayal of domestic life." (Did you make that up yourself, Blanche, or did some wiseacre tell you? I am almost afraid, unless you cribbed it from a Chautauqua lesson book, that you must be past twenty-five!) "I for one," she goes on, "will take something besides the neighbor's cat and his baby. I am sure one does not need twenty-seven cameras" —(Blanche lives on the Hudson, and has heard of the Albany celebrity, as who has not?)—"to get bits of every-day happenings in the open air in the summer time, only one must be careful not to let the compositions be too evident. Father says: 'You fixed things up in that picture,' when I make an artificial pose; but often I deceive him when I have succeeded in putting accessories so skillfully together that he thinks 'they growed.'"

"The Light that Failed."—After Kipling.

This must be a made-up picture. Ever so many people stiffly placed in rows, in the background, and a distressed amateur, of either sex, standing behind her camera, with a step-ladder at one side on which has been placed the regulation tin pan in which a magnesium-cartridge box rests. A blur about the ladder, perhaps produced by dropping a little extra alkali on one part of the plate in the development, will give the idea of the flash that flashed too soon, or was not bright enough. The people might be grouped on a piazza, as if the view were made on a summer evening; such attitudes as ingenuity may suggest, and the occasion might add humor to the whole—and I think—

Evidently Blanche blushed when she wrote this, so we can only guess what she thinks.

Adelaide Skeel.

CLAM CHOWDER.

(Read before the London Camera Club.)

Clam chowder is an American dish for which Coney Island is very famous. It is now about ten years since it was my privilege to taste this delicacy, but unfortunately I have forgotten the exact formula. Suffice it to say that although the bivalve clam is the most important ingredient, yet there are many others, and fortunately so, for in this variety lies my safety. It ought to be already evident that "chowder" is not my theme to-night, and if any one objects to what he thinks to be a deceptive title, let him visit at least a part of his spleen upon the head of our secretary, for it was in a fit of desperation caused by a telegram from him to "give title or life" that an evil spirit suggested clam chowder. I thought that under the cover of so multifarious a dish I could introduce anything which might suggest itself.

At a meeting of the Photographic Society of Great Britain, I made some remarks on developing baths for platinotype, and on the influence of temperature and dilution. These remarks form a fitting introduction to what I am to illustrate to-night. The printed scales referred to in that paper I now exhibit, but they are of very little help unless closely studied.

Now I thought that by exhibiting a series of prints from ordinary negatives the chief effects of certain variations in development might be readily displayed. I have here several distinct series of prints. Every print of a series is made from the same negative, printed on the same day, with paper from the same batch, the difference between the prints being only in the matter of development.

The prints shown illustrate some of the variations to be obtained by cold development of hot bath paper. The same temperature was used throughout the experiments, namely, 60 degrees Fahr., and the developing baths were as follows:

Normal oxalate solution.—One pound oxalate of potash dissolved in 54 ounces of water.

Strong D solution (a mixture of potassic oxalate and phosphate).—One pound of the mixed salts dissolved in 54 ounces of water.

Normal D solution.—Half pound of the mixed salts dissolved in 50 ounces of water.

The results obtained may be tabulated thus:

Normal oxalate at 60 deg. Fahr.	Gives a quicker development than either of the D solutions. And stronger middle tones.
Strong D solution at 60 deg. Fahr.	These baths give a slower development than the normal oxalate. And less strength in the middle tones. With the normal D solution the scale is slightly shortened.
Normal D solution at 60 deg. Fahr.	

If these developers be acidified with oxalic acid the results are different, thus:

Normal oxalate acidified by C_2 H_2 O_4. Temp. 60 deg. Fahr.	Development much slower. The image weaker both in shadow and middle tones.
Strong D solution acidified by C_2 H_2 O_4. At 60 deg. Fahr.	The image very slightly weaker.
Normal D solution acidified by C^2 H_2 O_4. Temp. 60 deg. Fahr.	Shadows not reduced in strength, but the scale shortened. Hence a good developer for very weak and flat negatives.

The principal difference between hot and cold development of hot bath paper is seen in the middle tones of the picture. These middle tones in cold bath developments are generally much reduced in strength. The other differences are slight, but the shadows are given with rather less vigor by the cold method. In length of scale the hot method has usually a little advantage.

If I am asked which of the developers referred to is the best for cold development, I think, upon the whole, one of the D solutions (but not acidified, unless for special effects). These solutions have less tendency to produce a granulated effect in the prints than a plain oxalate bath. In certain cases, however, especially in large work, granulation is decidedly advantageous in helping to give transparency, and therefore a plain oxalate bath would be more suitable.

In using cool baths it is necessary to print more deeply than for hot development, frequently until the deep shadows are solarized, and a much longer development is necessary. The progress of development should be watched and arrested at the right moment. As a general rule, paper which is two or three weeks old will give better results than fresh. And it is often useful to spread the prints at the bottom of a drawer or in a cupboard for a few hours before developing them. A caution against handling the sensitized surface is very necessary, for in cold development finger-marks and other injuries are very readily brought to light.

In working with baths at low temperatures a few degrees increase or decrease will make very distinct differences in the results obtained; much more marked than with baths at higher temperatures.

To-night I have illustrated only those variations due to a reduction of temperature, but many others may be made; for instance, dilution of the developer, introduction of restrainers, such as potassic chloride, etc.

At the meeting of the Photographic Society of Great Britain I showed some prints on wood, and yesterday I made a few more which I thought might be interesting. I will hand them round. Here is one more beautiful than any print on paper from the same negative; the transparency in the shadows is very wonderful. It was treated after it was dry with starch sizing, and afterwards with a little varnish. Here is a reminiscence of one of our excursions without any after-treatment. I don't really know how to treat the wood after printing. These are merely experiments, but I think wood might be made useful for decorative purposes, but proper subjects should be selected for the purpose; either plain dark or light backgrounds and simple subjects. Copies of Japanese embroidery make very good pictures, which might be used for the panels of doors. There are certain difficulties in working with wood; it must be printed by the cold-bath process, as it is almost impossible to obtain first-rate results by the hot process. I should be very glad to receive hints as to the treatment of the wood afterwards. My best result has been obtained by the use of starch sizing and the rubbing-in of a small quantity of boiled linseed oil. I have used American holly, which is very beautiful wood. Sycamore is no good for the purpose. Pine I have not tried. Most of the examples shown are on chestnut.

W. Willis.

PHOTOGRAPHY IN GROTTOES AND CAVES.

[A communication to the French Photographic Society].

INTERIOR photography is in general sufficiently difficult, but when we come to photograph the interior of caves the work becomes more difficult still, for here we have vast halls with somber shades, the walls of which reflect little light, and where there is little or no relief. Many methods of artificial illumination may be employed

in this work. They include: 1. The electric light; 2. The pyrotechnic composition known as Bengal light; 3. Magnesium ribbon lamp; 4. Chemical flash composition; 5. Magnesium powder without admixture. These different methods we will consider *seratim*.

1. *The Electric Light.*—This will give the best results, but the necessary impedimenta, which is of the most cumbrous nature, cannot be introduced into the devious windings of many caves.

2. *Bengal Fire.*—This is the well-known mixture of saltpeter, sulphur, and antimony sulphide; but its use ought to be forbidden, for the fumes given off discolor any stalactites which may be in its neighborhood when fired. Moreover, the smoke so quickly dims the atmosphere that successive pictures cannot be taken in the same hall after its employment, to say nothing of the sulphurous fumes which render the air so irrespirable. These grave inconveniences almost forbid the use of this mixture, notwithstanding the white and brilliant flame which it affords.

3. *Magnesium Ribbon Lamp.*—With this apparatus it is possible to flood the surfaces to be photographed with light for several minutes, the amount of light being increased by a suitable reflector. MM. Gaupillat and Martel used this method last summer, but the results obtained were far from satisfactory, although the exposure was sometimes prolonged to as much as ten minutes. According to the information furnished by M. Martel, the inconveniences of this method are found in the inequality of the light, the length of exposure (during which other visitors are shut out), and more than all in the heavy smoke which forms a veil over the scene even while the exposure is being made.

4. *Chemical Flash Composition.*—These compositions are often of such an explosive character that it is hardly safe to handle them, for ignition may be brought about by simple percussion. A most dangerous accident might occur from a man while carrying a charge of this description stumbling in his passage through the dark cave. Besides, the concussion of the explosion might displace loose blocks and boulders, and so tend to further disaster. We have also again here the risks from the irrespirable products of combustion.

5. *Magnesium Powder Used Alone.*—This we may consider as the best method of all, and in many cases the only practicable one. Magnesium dust is not explosive; it does not necessitate cumbrous apparatus, and it produces a flash so short in duration that figures can be introduced by which the proportions of the cave can be gauged in the finished picture. The smoke in this case does not constitute any grave difficulty, for the little cloud produced during ignition is soon dissipated. I have made a series of experiments by the help of this agent, and the results being satisfactory, I have thought it well to bring them to the notice of the society.

M. J. Vallot.

(*To be continued.*)

Correspondence.

THE NEXT JOINT ANNUAL EXHIBITION.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Permit me to suggest that you have an editorial item in an early number of THE TIMES to the effect that the next joint exhibition of the Photographic Society of Philadelphia, the Society of Amateur Photographers of New York, and the Boston Camera Club, will be held in Boston in the spring of 1892, under the management of the Boston Club, and that that club has requested its members to have that exhibition in view while out "gunning" this season. Such an item will also serve as a hint to any others likely to be interested in that exhibition, as I take it for granted they all read THE TIMES.

Very truly yours,

Wilbur C. Brown,
Secretary Boston Camera Club.

JUNE 17, 1881.

THE VIENNA EXHIBITION.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: The following Americans were fortunate enough to have pictures of theirs accepted in Vienna:

James L. Breese two, and Alfred Stieglitz five, both of New York. John G. Bullock two, and George B. Wood five, both of Philadelphia. Mrs. Grey Bartlett, of Chicago, one. Miss Mary Martin one, and Harry Reid one, both of New York. H. McMichael, of Buffalo, one, and G. Nelson, of Lowell, one. John Dumont, of Rochester, six.

Over forty Americans had sent about 350 photographs; 10 men were accepted, represented by 25 pictures in all—in other words 93 per cent. of the work was rejected. The exhibition must be a grand one.

Truly yours,

Alfred Stieglitz.

NEW YORK CITY, June 19th, 1891.

[We think there is evidence of prejudice shown by the Admittance Committee in regard to the American exhibits sent to the exhibition.—*Ed. P. T.*]

Notes and News.

The Providence Camera Club held its seventh annual exhibition at the gallery of the Art Club, Providence, from May 25th to May 30th, opening each day from 3 to 10 P.M. The catalogue issued by the club is a neat one, prettily ornamented and containing a full-page frontispiece illustration.

The Souvenir Catalogue of the Third Annual Exhibition of the Yonkers Photographic Club contains pictures by the following members of this enterprising amateur organization: "Harvesting," a figure picture, by F. W. R. Eschmann; "Caught Napping," another figure picture, by President Jno. W. Alexander; a rural scene, by George B. Ripper; "A May Morning" (in the country), by Eugene D. Gardner; "By the Brook Side," a winter landscape, by Robert M. Reevs; and "A Cocoanut Grove in Florida," by George B. Ray, the photographic merchant of Yonkers.

Queen Victoria Likes to Pose.—Something like ten or twelve times a year does Queen Victoria sit for either photograph, crayon sketch, or miniature, and something like twenty-four times a year do her loyal subjects catch her likeness in a rapidly acting lens, quite unknown to the dignified lady, who really enjoys having her likeness limned. Very cheerfully she stands while the flustered photographer focuses her august person at the many fair and exhibition openings or corner-stone layings she attends in a twelvemonth; and, next to the famous cashmere shawls, brooches set with the royal likeness are the favorite gifts for faithful friends, relatives and servitors.—*From the Illustrated American.*

Biblical Criticism on a Scientific Basis.—The chief struggle between Biblical criticism and the traditional dogma is about the question of inerrancy. No word of Holy Scripture, no sentence of historic creed, makes this claim for the Bible. It is a theory of modern dogmaticians. Biblical criticism finds errors in Holy Scripture in great numbers. These errors are in the circumstantials, and not in the essentials. They do not disturb any doctrine; they do not change the faith and life of the Christian Church. The great reformers, Calvin and Luther, recognized errors in the Scriptures; Baxter and Rutherford were not anxious about them; the greatest theologians of modern Germany, Van Oosterzee, Tholuck, Neander, Stier, Lange, Dorner, Delitzch, do not ignore them. Where is the German scholar of any rank who denies them? British scholars such as Sanday, Cheyne, Driver, Gore, Davidson, Bruce, Dods, Blaikie; American scholars such as Schaff, Fisher, Thayer, Harper, Smyth, Evans, H. P. Smith, Francis Brown, and hosts of others, frankly point them out. It may be regarded as the consensus of Biblical scholars that the Bible is not inerrent; and yet the dogmaticians insist that *one* error destroys its inspiration. They battle in death-struggle for their dogma because their Bible shares in its defeat. They risk their whole Bible on a single error. One error in citation, one error in natural history, in astronomy, in geology, in chronology, destroys the whole Bible for them. It is now generally admitted that there are errors in the present text, but it is claimed that the original autographs as they first came from their authors were inerrent. But how can they prove this? It is pure speculation in the interest of their dogma. Criticism does not find the number of errors decreasing; they rather increase as we work our way back in the study of manuscripts, versions, and citations, and advance in the critical analysis of the literature. It discredits the entire work of criticism to speculate as to another text than the best one we can get after the most patient and painstaking If any one is disturbed, it will be those who have been study. Biblical criticism pursues its work in a purely scientific spirit. It will detect, recognize, and point out errors wherever it may find them in the Holy Scripture. If the Reformers and Puritans, the great Biblical scholars of the past, have maintained their faith in the Bible, notwithstanding the errors they have seen in it, it is improbable that the Biblical critics of our day will be disturbed by them. misled by the dogmaticians to rest their faith on the doctrine of inerrancy. These will ere long find the doctrine a broken reed that will give them a severe fall and shock to their faith, if it does not pierce them to the heart with the bitter agony of perplexity and doubt.—*From "The Theological Crisis," by Professor* CHARLES A. BRIGGS, *in North American Review for July.*

COLOR PHOTOGRAPHY.

MR. FREDERIC E. IVES made an important communication at the stated meeting of the Franklin Institute, June 17th, upon the subject of his process of color photography, in the course of which he explained and illustrated some recent improvements he had made in the means of operating the process, by which it is rendered comparatively simple and reliable, and capable of immediately profitable commercial operation for lantern illustration. When Mr. Ives first published his process, several years ago, the three negatives requisite were made in one camera from one and the same point of view, but last night he showed that, by an improvement on his heliochromic camera the three negatives representing the effect of the object photographed upon the three fundamental color-sensations, are now not only made from one point of view, by simultaneous and equal exposure, as they were three years ago, but also upon a single sensitive plate; so that the heliochromic negative is obtained with no more trouble than an ordinary one, and any number can be made in which the relation of one element to the others is exactly the same. The color prints, also, can be made from these negatives by a single exposure, in transparent gelatine, and separated only when ready to dip into the dye solutions representing the respective color-sensations. Mr. Ives showed, however, that it is not necessary to go to the trouble of making the color prints when only lantern illustrations are required. Lantern positives, made from the heliochromic negatives with no more trouble than ordinary lantern slides, were projected on the screen in the natural colors in the ordinary lantern, by means of a special front of Mr. Ives' own devising, and which was substituted for the ordinary projecting lens in about one second, so that an exhibition of ordinary lantern slides can be interspersed with projections in natural colors without causing any delays in changing from one to the other.

Several such projections were shown, including some admirable views in the Park, and they were received with prolonged applause. The approximation to the colors of nature were marvellously accurate. The positives were about one-third smaller than the ordinary projections, but were as sharply defined, and in as bright and true colors as those produced two years ago with the more elaborate and troublesome lantern. The lantern front used for these new projections consisted of three prisms, converging light from a single condenser and radiant to three small projecting lenses, the necessary color screens being located just behind the objectives. Mr. Ives also showed one of two cameras which he has devised to produce the heliochromic negatives, in which three negatives are made

on a single plate, the image-forming rays being transmitted to the single gelatine dry plate through three reflecting prisms, and from points of view so close together (less than half an inch apart) as to make perfect registration easy of accomplishment. By the other camera the three negatives will be made from the same point of view. Mr. Ives also announced that he was at work on a scientific novelty in the form of an optical device for the table, in which these positives could be seen in the natural colors as readily as stereoscopic views are seen in relief in the stereoscope.

Mr. John Carbutt said that he considered Mr. Ives' latest work by far the most important and valuable contribution to the difficult subject of photography in the colors of nature which had yet been made. He moved a vote of thanks to Mr. Ives, which was agreed to.—*Philadelphia Public Ledger.*

Photographic Societies.

THE YONKERS PHOTOGRAPHIC CLUB.

THE following are the awards made by judges Canfield, Newcomb and Tyler, Monday evening, June 8th:

FIRST AND SECOND PRIZES.

Class A, Landscapes.—1. "The Brook," 165, by Eugene D. Gardner. 2. "An Adirondack Landscape," 157, by same artist.

Class B, Landscape with Figures.—1. "The Harvest, "8, by John W. Alexander. 2. "Spring Furrows," 213, by George B. Ritter.

Class C, Animals.—1. "Astray," 27, by Walter Blackburn. 2. "Almost Milking Time," 194, by Harry J. Oakley.

Class D, Marines.—1. "On the Sound," 46, by Walter Blackburn. 2. "Sunlight on the Sea," 232, by George J. Stengel.

Class E, Genre.—1. "Mr. Hayseed in Politics," 142, by F. W. R. Eschmann. 2. "Now I Lay Me Down to Sleep," 11, by John W. Alexander.

Class F, Portraits.—1. Portrait No. 2, 22 in Catalogue, by John W. Alexander. 2. Not awarded.

Class G, Interiors.—1. "The Stairway," 239, by George J. Stengel. 2. "St. John's Church," 220, by George B. Ritter.

Class H, Still Life.—1. "A Study," 248, by George J. Stengel. 2. "Lilacs," 222, by George B. Ritter.

Class I, Hand Camera Work.—1. "Breezy Day," 365, by George B. Wray. 2. Not awarded.

SPECIAL PRIZES.

Class A.—"An Old Landmark," 163, by Eugene D. Gardner.

Class B.—"Sunday Afternoon, 325, by William H. Ulrich.

Class E.—"I's Happy," 177, by Eugene D. Gardner.

Class G.—"Fireplace in the Hall," 179, by Eugene D. Gardner.

Class H.—"An Effect of Light and Shade," 242, by George J. Stengel.

Summary.—Gardner, 4 firsts and 1 second; Stengel, 3 firsts and 1 second; Alexander, 2 firsts and 1 second; Blackburn, 2 firsts; Ritter, 3 seconds; Eschmann, Wray and Ulrich, each 1 first; Oakley, 1 second.

Kenwood Physical Observatory.—At the monthly meeting of the Chicago branch of the California Astronomical Society the newly completed Kenwood Physical Observatory was dedicated. Professor G. W. Hough. C. A. Young, of Princeton, Edward Eaton, of Beloit College, and J. H. Brashears made addresses The Kenwood Observatory was built by W. E. Hale, of this city, for the use of his son, Professor G. E. Hale. It will be used by the Chicago Astronomical Society, of which there are about thirty-five members. Gayton A. Douglass is its president. Photographic and chemical astronomy, rather than mathematical, will be the character of work pursued. The observatory is located at the corner of 46th Street and Drexel Boulevard. The first floor has four rooms—a reception-room, library, laboratory and developing-room. The dome, in which the telescope is placed, is 26 feet in diameter. The telescope is 22 feet long and has a 12-inch lens. Attached to it is a spectroscope with which the photography is done.

The Editorial Table.

Handbuch der Photographie fur Amateur und Tourist. von Major G. Pizzighelli. Halle a/S: Wilhelm Knapp.

The author devotes most of this book to amateurs and tourists, though there is much instruction for the professional. It is one of the most detailed and instructive works on the subject.

Since Major Pizzighelli wrote the first edition in 1886, such great progress has been made in photography that the book has of necessity far exceeded its predecessor and it has become necessary to divide it into three parts or volumes, treating therein respectively photographic apparatus, photographic processes and applied photography.

The first volume now before us treats of lenses. Much attention is given to the description of rigid and hand cameras, enlarging apparatus of different construction, and the application of artificial light sources come in for a goodly share of consideration. A number of the most popular flash-light lamps are described.

The book is profusely illustrated and is gotten up in the publisher's usual neat and elegant style.

S. R. Stoddard, the art publisher of Glens Falls, has issued for the class of '91 of Cornell a book of photogelatines, which will be an innovation on a long-established custom—the almost universal one of exchange of photographs among graduating classes at college. The book contains forty-four pages of pictures, 11 x 14 inches in size, giving the portraits of the faculty and the graduating class of 221 (twenty-four of whom are ladies), grouped, six and seven on a page, with about thirty selected views of the university buildings and grounds, with flower, fern and foliage surroundings after the style of the art books of the Adirondacks and Lake George, published by Mr. Stoddard and peculiar to himself. It also contains pages giving the names of the faculty and students, with their degrees, class officers, etc. The cover will be of heavy bristol, with gold embossed title, and all tied with silk cord of the university and class colors. Mr. Stoddard has also made a similar book for the graduating class of the Cornell School of Law.

From W. W. Bliss, the landscape photographer of Quarte, Cal., we have received three 5 x 8 photographs which are very interesting to us. The first is a cattle picture, and is unusually well made, considering the apparatus with which it is made (a cheap R. O. Co.'s Outfit). The other two are characteristic Western views. Mr. Bliss makes a specialty of Southern California pictures.

The first number of Volume II of the *Outing Weekly Tennis Record* for the season of 1891 was published on June 13th, and it should be read by every devotee of the delightful game. It is the official organ and bulletin of the United States National Lawn Tennis Association, and bears the indorsement of Chas. E. Stickney, secretary of that organization. The *Weekly Record* is tastefully gotten up, and, in addition to all official records up to date, contains portraits of noted players, a department of "Club Gossip," "Current Chat," "The Referee," and editorial paragraphs from the pens of prominent tennis players, while club matters, personals, etc., lend additional interest. The principal editorials refer to the new committee and amended rules of the U. S. N. L. T. A. The "English Letter," an article on "Mixed Doubles," and "Tennis in the South," are special features of a most attractive number.

Lamb's Essays, selected and annotated by Elizabeth Deering Hanscon, and published by D. Lothrop & Co., of Boston, is an excellent volume, and one which will be found of especial interest by those just making the acquaintance of Charles Lamb. The fame of this classic writer has increased rather than diminished in the fifty-seven years elapsing since his death. This volume satisfies the growing demand to know more about Charles Lamb as a man. Many of the essays selected are biographical in character, and followed as they are by the notes of the author, we have an excellent presentment of the character and personality of the gentle Elia. With but one exception the essays are copied from the magazines in which they first appeared, and many passages omitted in later editions of the essays are therefore replaced. Following are some of the essays included in the book: "My Relations," "Recollections of the South Sea House," "Oxford in the Vacation," "The Superannuated Man," "Old China," "Detached Thoughts on Books and Reading," and "An Autobiographical Sketch." The introductory sketch is a life of Charles Lamb by the editor of the book. Printed on good paper, in clear type, bound in neat blue colors, the book is sent post paid by the publishers on receipt of one dollar.

Record of Photographic Patents.

454,433. Adjustable Photographic Printing Frame. Henry B. Hennemann, St. Louis, Mo.

454,268. Machine for Printing from Callotype or Photo Gelatine Plates. William C. Hawkins, Taunton, Mass.

Design. 20,840. Photograph Mount. G. F. E. Pearsall.

Bunco.—"I would like to have a dozen panel photographs taken. What is your price?"

"Twenty-five dollars."

"What! You can't work that panel game on *me!*"

Queries and Answers.

89 OLD SUBSCRIBER: What is a calotype and what a kallitype?

89 *Answer.*—A calotype or talbotype is a negative made on paper. Saxe or Rives paper is brushed over with a solution of iodide of silver in iodide of potassium, and washed when partly dry. When required for exposure it is sensitized with a solution of gallo-nitrate of silver, or aceto-gallo-nitrate. The exposure required is several minutes, and the image is developed with gallic acid and silver nitrate. The negative is fixed in hypo, washed, and after being dried waxed or made translucent by other means. This is Talbot's original process. Kallitypes are positive prints on paper prepare with and organic salt of iron, preferably the ferric oxalate. But a short exposure is required, and the partly visible print developed with a very dilute solution of silver nitrate acidified with citric acid. The process has been repeatedly described in these columns.

90 PHOTO-LITH: Will you kindly explain what chemical action takes place when bichromatized gelatine is rendered insoluble on exposure to light?

90 *Answer.*—The gelatine is oxidized by means of oxygen, liberated from the bichromate, which in its turn is reduced to a lower state of oxidation.

91 A. T. M. would like to know which is the best lantern-slide plate in the market, and how to develop and fix them?

91 *Answer.*—We prefer the Carbutt; it is very clear and sensitive, and reliable. The manufacturer gives a developer formula of his own, but we have invariably had good success with the S. P. C. eikonogen or hydrochinon.

92 ANNE C. H.: What is S. P. C. clarifier, and what is it used for?

92 *Answer.*—S, P. C. Clarifier is a solution of acid bisulphite of soda, and is used for the preparing of the acid fixing bath. To one quart of hypo solution, 1 : 5, add 2 ounces of clarifier, and you will have an excellent and permanent fixing bath.

93 P. SPERBER: What is the cause of a white deposit on a plate having passed through a solution of alum and chrome alum, and finally through the hypo bath?

93 *Answer.*—A decomposition of alum and hypo resulting in sulphur and hydroxide of aluminum. After putting through the alum, the plate should be washed thoroughly, and every particle of alum be removed.

94 TYRO 1 wishes to have a good eikonogen developer for star bromide paper. 2. Is it preferable to expose star bromide paper to diffused day, or to artificial light?

94 *Answer.*—1. The S. P. C. eikonogen developer much diluted. 2. Artificial light. It is more controllable, and better tones are attainable with it.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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Weekly (illustrated) for one year.....$5 00
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Single copy, 15 cents.
The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.
On Foreign Subscriptions $1 00 is added to pay postage.
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Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

"Peterboro, Ont., June 17, 1891.

"The Scovill & Adams Co., New York.

"Gentlemen: The 5 x 8 'Favorite' Outfit came to hand on the 11th inst. All the goods contained therein are highly satisfactory both in quality and price; quality of this apparatus is indeed far ahead of what such a low price would indicate.

"Yours truly,

"J. LAWSON HALL."

"PHOTOGRAPHIC OPTICS," by W. K. Burton, is the title of No. 37 of the Scovill Photographic Series. This number will prove a valuable addition to the series, and we cordially recommend its study to those of our readers who are interested in photography and who desire to have more than a superficial knowledge of the art. It can be obtained from any photographic supply dealer, or from Messrs. Scovill & Adams, 423 Broome Street, New York. The price is $1.—*Pacific States for May.*

Studio Changes.

Haverhill, Mass. Messrs. W. P. Tennant & Son have dissolved.

Business Notices.

PLEASE ADVISE US IF WE HAVE NOT WRITten your name and address correctly, as we will be sending out circulars frequently and desire to reach you as promptly as possible with notices of new things, changes in prices, etc.
DOUGLASS & SHUEY CO.,
Merchants in Photographic Supplies,
111 State Street, Chicago.

A 10x12 DALLMEYER R. R. LENS, No. 30110, was stolen from the gallery of Jos. Slater, Franklin, O., during the month of May last. If said lens should be presented to any one for sale, Mr. Slater will be obliged to him if he will telegraph at his expense and hold the lens.

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423 Broome Street, New York.

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S. R. STODDARD, Glens Falls, N. Y.

BEFORE stocking up for the summer's work try the Chautauqua plate.
MONROE DRY PLATE WORKS, Jamestown, N. Y.

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NOW READY, MORAN'S BARGAIN LIST No. 37, fourteen pages. Look out for it. Send your address and secure a copy. R. H. MORAN,
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PURE GERMAN MILLS MAGNESIUM POWDER for Flash Lights.
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As a means to encourage amateur photographers in the production of high-class work we offer to the amateurs of the Unites States $500 in cash prizes for the best specimens of their work. There will be a first, second and third prize in landscapes, in portraits or groups, and in flash lights.

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Send for sample picture and circular to the manufacturers,

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Special agents for the Platinotype Process. Printing and Developing done with greatest care.

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Are all branches to which special attention is paid, and for the requirements of which no expense has been spared in order to perfectly equip our establishment.

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Instruction daily, from 8 to 12 A.M. and from 1 to 4 P.M.

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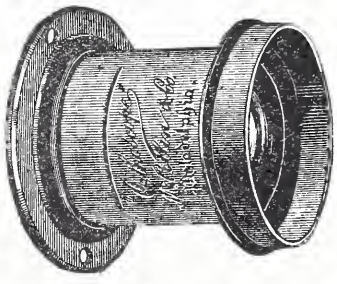
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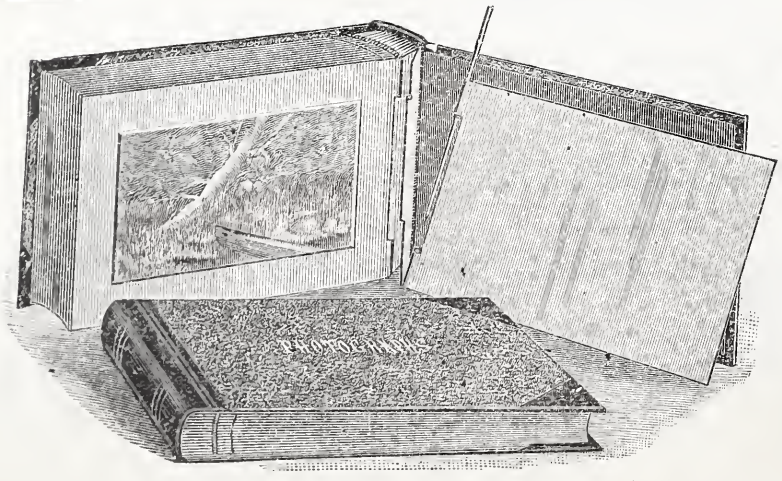
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Photographic Supplies of all Kinds

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FULL LINES OF LEADING MAKES OF

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☞ Dark-room for use of customers.

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Opposite Delavan House, 582 Broadway, ALBANY, N. Y.



Patented July 17, 1887.

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These are the only stamp portraits that are gummed and perforated, and being the exact size of ordinary U. S. postage stamps, photographers and others will find them an interesting novelty in advertising their business, as they can be mounted on business and visiting cards, letter-heads, etc.

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FRAMES, MOULDINGS, ETC.

Amateur Outfits a Specialty.

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No. 10 SIXTH STREET,

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MORRISON WIDE-ANGLE VIEW LENSES.



These lenses are absolutely rectilinear; they embrace an angle of fully 100 degrees, and are the most rapid *wide-angle* lenses made.

No. of Lens.	Diameter	Size of Plate.	Equivalent Focus.	Price.	
0..1	inch...	3¼x4¼ inch...	2¼ inch...	each, $20.00	
2..1	"	...4 x 5 "	... 3¼ " ... "	25.00	
3..1	"	...4¼x 6½ "	... 4¼ " ... "	25.00	These 5 sizes will
4..1	"	...5 x 8 "	... 5¼ " ... "	25.00	fit into 1 flange.
5..1	"	...6½x 8½ "	... 6½ " ... "	25.00	
6..1	"	...8 x10 "	... 8 " ... "	30.00	
7..1½	"	...11x14 "	...10½ " ... "	40.00	These 2 sizes will
8..1½	"	...14x17 "	...14 " ... "	50.00	fit into 1 flange.
9..1½	"	...17x20 "	...17 " ... "	60.00	These 3 sizes will
10..1½	"	...20x24 "	...22 " ... "	80.00	fit into 1 flange.
11..1½	"	...25x30 "	...28 " ... "	100.00	

☞ Nos. 1 to 6 are all made in matched pairs for stereoscopic work. The shorter-focused lenses are especially adapted for street and other views in confined situations. For general purposes, a pair of No. 5 lenses will be found most useful.

FOR SALE BY ALL DEALERS.

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WILSON-HOOD-CHEYNEY COMP'Y,

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Full Assortment of White's Posing and Lighting Specialties.

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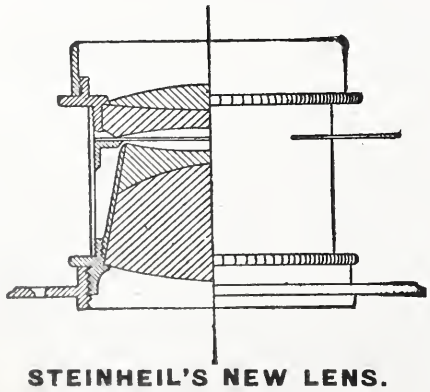
A pamphlet of information and abstract of the laws, showing How to Obtain Patents, Caveats, Trade Marks, Copyrights, *sent free.*
Address **MUNN & CO.**
361 Broadway,
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THE SCOVILL & ADAMS COMPANY.

THE UNRIVALED STEINHEIL LENSES.



STEINHEIL'S NEW LENS.

These Lenses not only maintain their old-established reputation, but continue to lead in the field of progress. Made in six different series for every description of work. Special attention is called to

Series No. II, Patent Antiplanatic, the newest conception in rapid lenses. For Instantaneous Portraits, Large Heads, Full Figure Groups, Architecture, and Landscape. A marvel of illumination, depth and rapidity. No Photographer or Amateur should purchase a lens before testing a Steinheil, Series No. II. See accompanying cut.

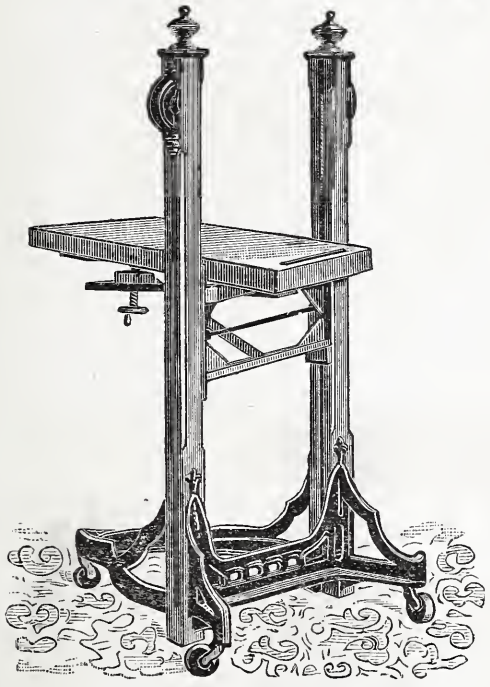
Series No. III, the famous Aplanatic tube, the illumination of which has been increased, and which is recommended for large Portraits, full-size Figures, Groups, Architecture, and Landscape.

Series No. VI, Wide Angle Aplanat, which has no rival for copying Maps Charts, Paintings and Engravings. It is the Photo-lithographer's favorite.

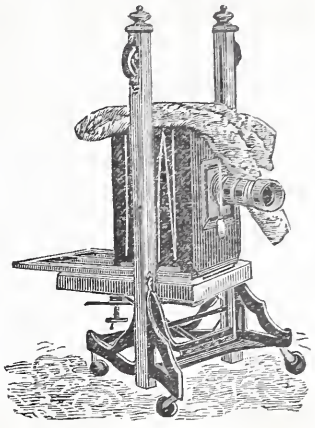
Send for Illustrated Catalogue and Price-List to your dealer, or

THE SCOVILL & ADAMS COMPANY.

THE SEMI-CENTENNIAL CAMERA STAND



LEADS ALL OTHERS.



At the late Convention held at Washington, the Award for the most Improved Mechanical Appliance in Photography was given it.

NO STAND

can compare with this for its ease in working, its durability and elegant appearance.

SEE ONE AND BE CONVINCED.

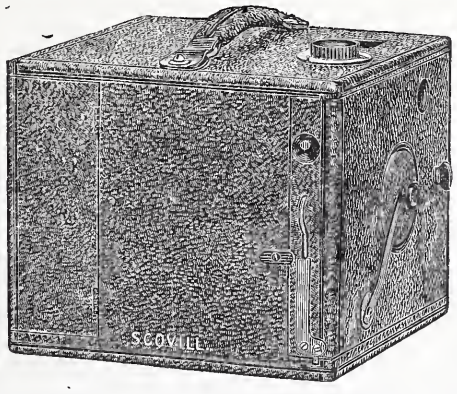
E. C. FISHER, Inventor and Manufacturer.

Sold by all Dealers. Price, boxed $25.00.

HORGAN, ROBEY & CO., Sole Agents for U. S., Boston, Mass.

Weight of Stand, packed ready for shipment, 95 pounds.

THE WATERBURY DETECTIVE CAMERAS.



MANUFACTURED BY THE AMERICAN OPTICAL CO.

Timed and Instantaneous Photographs. This is the only Detective Camera which is as well adapted for making timed views as for photographing quickly moving objects. The negatives produced are of such sharpness that they may be enlarged to almost any size. It is

The only Detective Camera made with plate for tripod, and with ground-glass the full size of the plate, just as in an ordinary view camera. This ground-glass is where it cannot easily be broken,

The Recessed Finder shows *the same image* as is included on the ground-glass, though diminished in size. Without this accurate finder, one cannot be sure of what is taken in or left out of an instantaneous photograph.

The Focusing Scale is beside the Finder, where it may be readily seen and adjusted.

Price List.

	Leather Covered.
4 x 5 Waterbury Detective Camera, with 2 Double Holders	$25 00
5 x 7 Waterbury Detective Camera, with 2 Double Holders	40 00

FOR SALE BY ALL DEALERS.

THE SCOVILL & ADAMS COMPANY

Universal Time and Instantaneous Safety Shutters

ARE MADE BY THE

AMERICAN OPTICAL CO.,

which fact is a guarantee of their perfect construction. These shutters are fitted to the front or hood of the lens, and can be attached or removed with the greatest ease, as no screws are required.

The great number in use is an indication of their superiority over all others, and when the cost is compared with that of other first quality shutters

The Scovill & Adams Co. Universal Shutters

will have the preference in all cases.

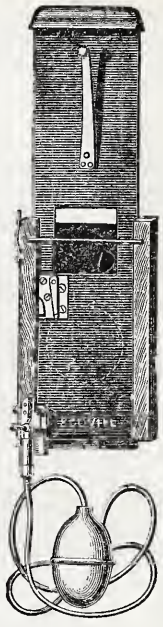
SCOVILL & ADAMS TIME AND INSTANTANEOUS SHUTTER.

That the substitution of a pneumatic release for the ordinary trigger on a wood drop-shutter greatly enhances its value, "goes without saying."

THE SCOVILL & ADAMS TIME AND INSTANTANEOUS SHUTTER

Is Fitted with Pneumatic Attachment,

which may be worked at a considerable distance from the Camera, thus enabling the operator to form part of a group or to be included in a view he is photographing. This Shutter may be used for either timed or instantaneous exposures ; the change is made by simply moving a switch.

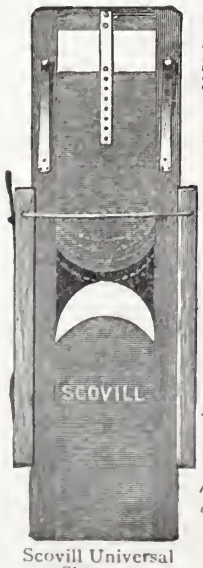


Scovill Safety Shutter, with Time and Instantaneous Attachment.

SCOVILL UNIVERSAL SAFETY SHUTTERS.

This Shutter is styled Universal, not only because more of the Scovill Safety Shutters are in use than of any other pattern, but because it can be arranged with a variety of openings, from ¼ to 4 inches at the center, as shown by the dotted lines of the accompanying illustration. Uniform distribution of light over the plate is insured by the form of opening.

The brakes on all these Shutters make them safe to use, by preventing a recoil with the resulting double exposure, and the jarring common to many shutters, which in time breaks apart the glasses of a Lens where cemented together—hence the designation "Safety Shutters."



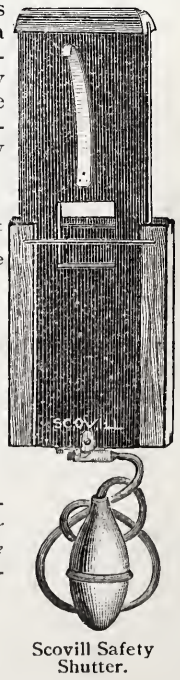
Scovill Universal Shutter.

PRICE LIST.

No.	Width of Opening in Slide.	Scovill Universal Shutters.	Universal Shutters, with Pneumatic Release.	Scovill Safety Shutters.	Safety Shutters, with Pneumatic Release.	Universal Time and Instantaneous Shutter with Pneumatic Release.
1	1¼ ins.	$2.70	$4.20	$1.20	$2.70	$4.70
2	1½ "	2.80	4.30	1.30	2.80	4.80
3	1¾ "	2.90	4.40	1.40	2.90	4.90
4	2 "	3.00	4.50	1.50	3.00	5.00
5	2½ "	3.10	4.60	1.60	3.10	5.10
6	3 "	3.25	4.75	1.75	3.25	5.25

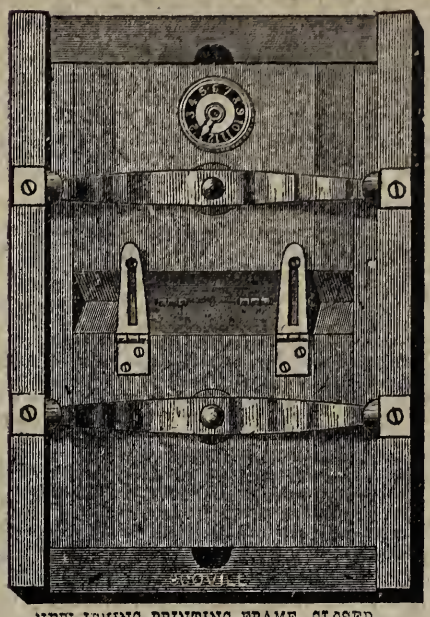
When ordering these Shutters, exact diameter of hood of Lens should be given, so that the proper circular opening may be cut out to exactly fit hood of Lens.

For Sale by all Dealers in Photographic Material.



Scovill Safety Shutter.

IRVING PRINTING FRAMES



NEW IRVING PRINTING FRAME, CLOSED.
BACK VIEW.

With Adjustable Supports.

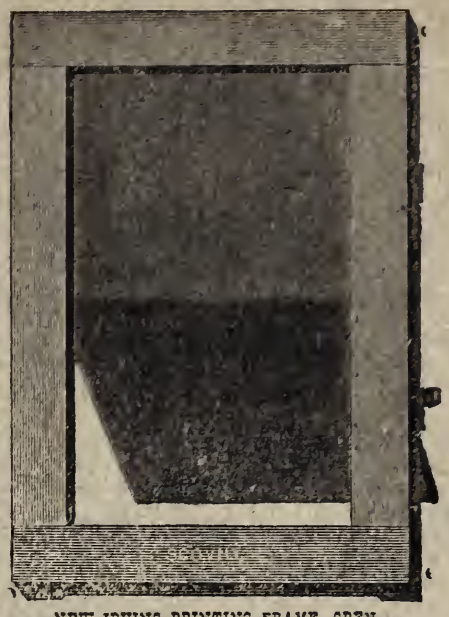
(PATENTED.)

The NEW IRVING FRAMES are now all made with adjustable supports. They are in workmanship, design, and other respects, superior to all other printing frames.

PRICES FOR HALF OR TWO-THIRDS OPENING STYLES.

3¼ x 4¼	$0 45
4 x 5	48
4¼ x 5½	50
4¼ x 6½	55
5 x 7	60
5 x 8	65
6½ x 8½	70
8 x 10	80

When made with back to open lengthways, ten per cent. is added to the foregoing prices, for the respective sizes.



NEW IRVING PRINTING FRAME, OPEN
FRONT VIEW.

The continuous felt pads, made especially to order for us, insure absolute protection and uniform pressure throughout. The Irving Patent Catches lock the back, so that when one flap is open there is not the slightest danger of the flaps, paper or negatives slipping.

The springs are cut by dies of specially tempered and tested metal, and are riveted to the backs with washers underneath to protect the woodwork.

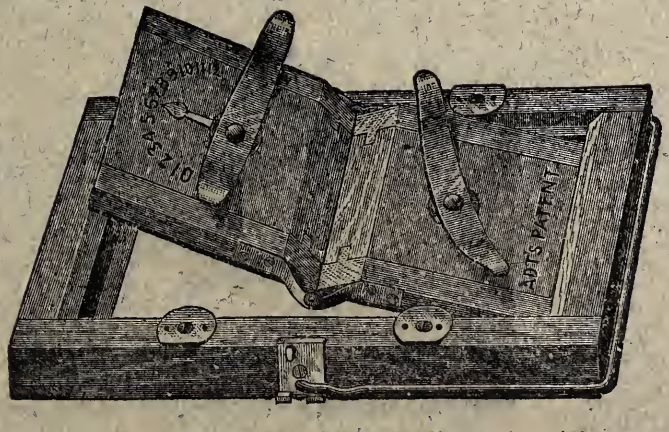
The IRVING FRAMES are made of cherry guaranteed not to warp or crack. Their construction and finish is acknowledged to be superior to that of all other printing frames.

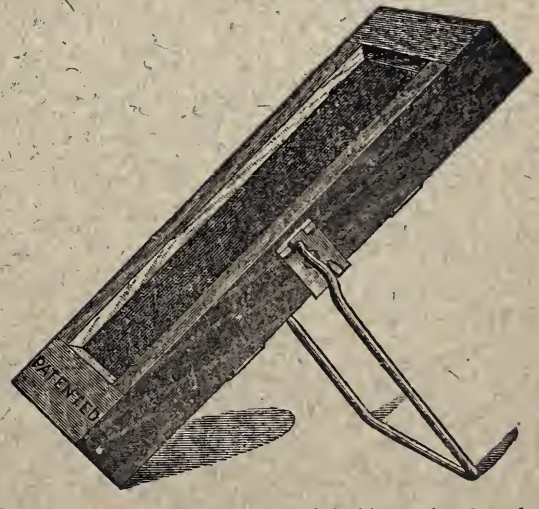
The tally does not depend upon any other part of the frame to lock it, for the pointer will remain in place no matter what is done to other parts of the frame.

IRVING FRAMES ALL HAVE ADJUSTABLE SUPPORTS.

ADT'S PATENT PRINTING FRAME.

THE MOST PRACTICALLY CONSTRUCTED FRAME IN THE MARKET.





As will be seen by a glance at the cut, the adjacent edges of the parts of the back-board are beveled outward, and the hinges placed on the sides with their axes on a line with the surface. This permits the attachment to the face of the back-board of a **Heavy, Continuous Elastic Felt Pad.** This obviates the necessity of using a separate pad, which is so easily misplaced and lost.

These Frames are now supplied (without extra charge) with Adt's Patent Support with which the frame can be stood on either end, and at four different angles, for exposure while printing. It is out of the way of the printer when introducing the paper, or examining the print, for when the frame lies or is held with back up, the support instantly drops upon its stops for rest, and is entirely out of the way of the hand of the printer, so that he may remove or open the back-board, or replace it, as if there were no support present. Being arranged close around the sides and ends of the frame, it occupies so little space as not to interfere with the packing or storage of the frames, and when the printer places his frame for exposure the support readily finds its position for supporting the frame without any special manipulation.

PRICES.

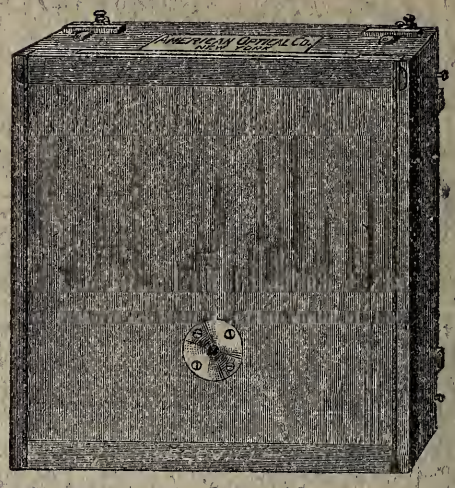
3¼x4¼,	$0 50	4¼x6½,	$0 60	6½x8½,	$0 75
4x5,	50	5x7,	65	8x10,	85
4¼x5½,	50	5x8,	65	10x12,	1 15
11x14,	$2 15				
13x16,	2 40				
14x17,	2 80				

When made with backs to open lengthways, an additional charge of ten per cent. wil b added to the above prices.

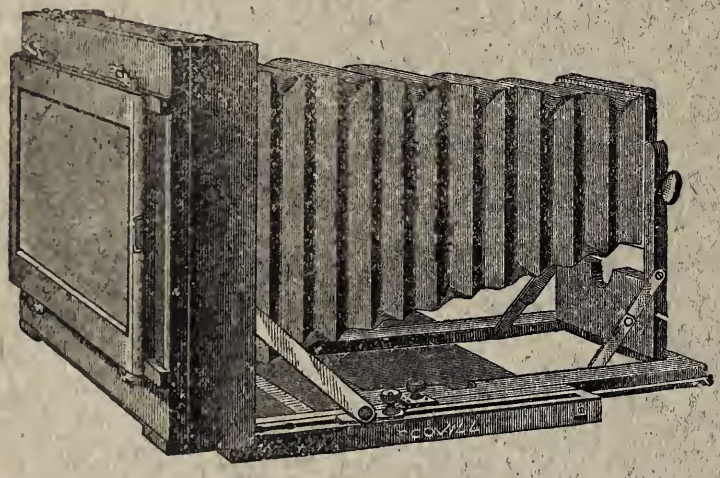
THE SCOVILL & ADAMS COMPANY, Agents.

IRVING VIEW CAMERAS.

The IRVING CAMERA was awarded the highest prize by the judges at the American Institute Fair. They expressed themselves as unable to see how a more complete, compact, light, handsome and serviceable camera could be made.



The IRVING CAMERAS all have swing front in addition to swing back. They have the Howe patent reversible back, fitted with self-locking ground-glass frame, and when desired celluloid is used in place of glass for the focusing screen.



One of the best features of the camera is the absence of detachable screws. An idea of this is conveyed by the illustrations showing the camera when extended and when folded.

A superb canvas case, the finest ever made, is supplied with each one of the IRVING VIEW CAMERAS.



Price List is as follows:

	Single Swing.		Single Swing.
4x5	$27.00	6½x 8½	$40.00
5x7	33.00	8 x10	45.00
5x8	35.00		

In order to convey an adequate idea of the lightness of these cameras, it is sufficient to say that the 5x8 size camera, with ground-glass in frame and holder, weighs only 3 lbs.

MANUFACTURED BY THE

AMERICAN OPTICAL CO.

FOR SALE BY ALL DEALERS.